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# AIR TRAILS

September  
1951  
Vol. 36, No. 6



Plane: Airmen of Vision  
Winner. Cover: S. C. Smith

## THE LEADING MAGAZINE OF AIR PROGRESS AND AEROMODELING

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## FROM THE READER

All communications to the editorial offices should be addressed to Air Trails, 304 E. 45th St., New York 17, N. Y.

**A&E Mechanic Checks Our Engines**... Concerning a recent issue featuring "United Nations Air Force," I'd like to refer to the caption under the F-51H, which says it was "built for the British in 1940." In my personal library I have "Aerosphere—1943." It states that the P-51, let alone the H model, got into production on Dec. 31, 1942. I would suggest that more research be spent on the correct hp for the H model. Doesn't the H also have a Packard-built V1650 Rolls-Royce in it?

Where is the armament on the SB-17? You state it is fully armed. I see no tail guns, side guns, lower ball turret, upper powered turret or nose guns. The nose of your SB-17 has a radome in it; which is correct?

Having been a model builder since 1936, a civilian mechanic for the Air Force for 6½ years and for 3 years in the Air Force as a mechanic, I have tried to keep pretty well informed on American aircraft. Perhaps there are some details I have missed.

Robert J. Sward, Bountiful, Utah

• We are afraid you have completely misunderstood the caption under the F-51H photo in the issue referred to. It does not state that the H model was built for the British in 1940, but that it is vastly superior to the early model built for the RAF—but this was not the H. The engine of the H is a Packard Rolls-Royce V1650-11 developing 2200 hp with water injection. As far as these figures are concerned, they are the ones quoted by North American Aviation, builders of the plane.

Although the pictures of the SB-17 and the SB-29 do not show the armament, those operating on rescue missions around the waters of the front do carry guns.

**That Team Entry Rule**... In reading the "Western Roundup" section of your July issue I was overcome by the way Mr. Everett handled the report of a Bakersfield contest. The description of two flyers trying to beat the team entry rule was good, but the manner in which the problem was solved may result in much confusion at subsequent contests.

The team entry rule specifies that one team member must be designated to fly the model(s)—with team entry made in the age class of the oldest entrant.

The A.M.A. rules were very thoroughly investigated during the briefing meetings of the Fourth International in order to establish interpretations of any controversial sections. Under the provision for team entry it is not probable that an interpretation could be made that would fit the situation described by Mr. Everett.

Mr. Everett suggests that an immediate ruling be made to cover the situation. I agree in principle but feel that only an explanation of the present rule is needed, which will certainly save a lot of trouble for many contest directors for the rest of the current season.

Warren E. Bartlett, Vice President, Academy of Model Aeronautics

**Housegirl Remembers P-51s**... I'm in Japan with my father and mother. I guess you get quite a few letters from occupation personnel. I think Air Trails is tops for modelers' dope. I'm 16 and have just started on model

planes and each month get it at the PX.

I was reading "The Readers Write" section when I came upon the letter from C. S. Cobb III, Rye, N. Y. He seems to think a lot of the Thunderbolt. I'll admit that Thunderbolts are fine planes, but I read an article reporting that several times P-51s departed one flight to escort another. I don't think the 51 was ever "chicken" because of gas. [Evidently the writer is referring to Mr. Cobb's statement that the Mustangs were forced to turn back over Holland and France while the Thunderbolts, with the aid of drop tanks, went all the way with the Forts into Germany.—Ed.]

Our housegirl told me she saw 47s only once or twice, but P-51s would come in hordes from "oki" or big ships. The B-29s were seen most and she said they usually flew over her house on the way to Tokyo or Yokohama. When they bombed Yokosuka she said the P-51s would strafe and dive-bomb a ship so much she would wish it would sink so they would go away. By the way, the ship is solid concrete and is still out there in the harbor.

A friend of mine said that when he was on the "Shangri-la" they lost 5 P-47s to each 51 when they were near Malta. He had to make repairs a lot, however, out of wing-tips and parts for the tails of the P-51s as they were really shot up but "took it."

Gene Thompson,

c/o Postmaster, San Francisco, Calif.

**Stamps and Approval**... I enclose a few foreign stamps that I would like you to send to the veterans' hospital to which you send yours.

Before I received a gift subscription from a friend, I got Air Trails every month at the newsstand. I find it so much more convenient that I would like to encourage many more modelers to subscribe to it.

Bobby Livingston, Manteca, Calif.

• Bobby's "few" stamps were actually several hundred important foreign issues. He is referring to the office custom of forwarding to a local vet hospital all stamps received on foreign mail.

**What the G.I.s Say**... Concerning your publication Air Trails Model Annual for 1951, I have found it practically impossible to locate a copy anywhere between here and Korea. I believe it will be well worth while to write direct to you if the supply is not exhausted.

Many a G.I. has gone through my copies of ATs with the same reply: "Gee! Where'd ya get this?" If you put much more in them you'll have to publish it bi-monthly.

Cpl. Carl F. Anderson,  
c/o P. M., San Francisco, Calif.

**From the Red Cross**... May I take this opportunity to tell you how very much the Red Cross appreciates the fine cooperation of Air Trails during the 1951 Fund Campaign. We value very highly the support you are giving through the reproduction of the Red Cross emblem appeal in the April issue—a contribution that is of immeasurable help to chapters, nationwide.

Edwin H. Powers,  
The American National Red Cross

(Continued on page 9)





# 1718

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(AGE 16—STAY IN SCHOOL)

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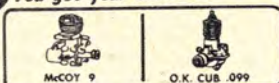
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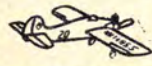


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## PLANE TALK

Sources in Berlin with ears close to the Iron Curtain indicate that the Russians have checked out a twin-jet bomber, tentatively identified as the La-26, over a 2,000-mile course at an average speed of 590 mph, carrying a full bomb load equivalent to one A-bomb. This airplane is believed to be the one formerly identified as an Ilyushin design, which was publicized earlier this year and pooh-poohed by some of the top-level "intelligence" sources in the U.S. and England. The airplane looks like a jet-version B-26 Marauder, and is reported to be extremely effective at medium altitudes and as a ground support machine.

More data is becoming available on the La-17 frontier fighter, one of Russia's hottest jets. Some of the planes are showing up without the rocket engine in the ventral fin fairing below the fuselage. The first thought was that these were earlier versions of the La-17, before the bi-fuel rocket was added to give the interceptor a greater burst of speed. However, these machines were reported to have better emergency-power performance than the so-called "bis" model with the extra rocket engine.

It now turns out that the Reds have developed an idea originated by the Germans in 1944 to run a rocket engine *concentrically* through the middle of a jet engine. The how of this idea has never been made clear, but one of the leading U.S. rocket engine authorities states that it is not only possible but highly efficient. Such a rocket would be lighter than the ordinary Walters bi-fuel system, would burn jet engine fuel with concentrated nitric acid, and use many of the accessories and components of the turbo-jet engine in its operation.

This same rocket authority indicates that the Russians are very probably concentrating on this fuel-oxidizer combination for a number of reasons; first, because concentrated nitric acid can be sealed in stainless steel drums and stored almost indefinitely, while other oxidizers, like liquid oxygen and hydrogen peroxide evaporate or lose strength quite rapidly. Fuels like aniline and similar coal-tar derivatives would require the creation of new industries in the USSR. They were used in Germany because they were by-products of already established dye industries. Supply is always a prob-

lem in the USSR and the use of the gasoline plus nitric acid system makes the most sense for the USSR.

Reportedly, the Yak-21, a modernized version of the Me-163 German rocket fighter, is powered by a modernization of the BMW 718, fitted with a smaller auxiliary burning chamber used for cruising. The Yak-21 reportedly has a regular stabilizer and elevators, to help overcome pitching movement as the plane approaches the speed of sound. The ancestor Me-163 had a fin and rudder, but used wing-tip elevons.

Here at home, the Navy is doing a lot of searching for ways to get around landing speed problems. One of the avenues of investigation concerns the Lanier Paraplane, a light



Swedish Saab J-29 fighter with battery of sixteen 6-inch rockets slung under wings to give single-salvo firepower of light cruiser.

aircraft using the vacu-wing principle. Not too many months ago, this system, which has been a quarter of a century in coming, was regarded by certain military thinkers as a "gimmick" and hardly worth official notice. A civil version of the paraplane hovers at under twenty miles per hour.

Remember Maurice Delanne and his Duo Monoplane? (Air Trails, October 1950). Watch for startling developments along these lines in England in the not too distant future. Do we always have to miss the boat in the United States?

Noted design team of Gottlieb and Snyczar are back in the States after completing one of the toughest consulting jobs to date. This engineer-mathematician combination completed a full program of designing, building and completing tests and certification on a transport helicopter for Intercity (Continued on page 60)



Resembling the Martin B-26 Marauder is this latest Russian La-26 with reported 590 mph average ("Slick" Goodlin collection).









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## air notes

AVIATION TODAY  
AND TOMORROW

CAPT. JAMES JABARA, of Wichita, Kans., became first jet ace in history when he "Sabred" his sixth MiG-15 over Korea. . . . AIR FORCE has ordered a substantial number of Chase C-123 assault transports. . . . IDENTIFICATION CARDS for civilian pilots, similar to those used during World War II, mandatory after Sept. 1; obtainable through local CAA offices. . . . CANADIAN BUILT F-86 powered by Avro engine flew from Toronto to Montreal at 665 mph average speed. . . . BOEING B-52 & new Convair B-36 swept-wing bomber will each be powered by eight jet engines. . . . CIVIL AIR PATROL has 45,220 active Senior Members & 32,990 Cadets (of which 6,852 are girls).

*FOUR-JET BOMBER, the Vickers 660, powered by Rolls-Royce Avon engines, said to be capable of carrying atom bomb, unveiled in England. . . . ARTIFICIAL RESPIRATION starts jets in Korea. Method consists of blowing exhaust from one jet plane into the air intake of another parked behind it. Eliminates cumbersome electrical starting equipment at advanced bases.*

NINE PIPER SUPERCUBS added to Dept. of Interior's Fish & Wild Life Service aerial fleet. . . . 45,000th military airplane designed & built by North American Aviation since 1936 delivered to Air Force—the plane was an F-86E. . . . ALTITUDE RECORD of 38,650 ft. for two-place sailplanes established by Robert Symons & Dr. Joachim Kuetner at Bishop, Calif. . . . UNITED AIRLINES celebrated its 25th anniversary. . . . NASH-KELVINATOR CORP. will manufacture 2500 hp R-2800 Pratt & Whitney engine. This powers North American AJ-1, Vought F4U-5 Corsair, Douglas DC-6A, Convair T-29 & Chase C-123. . . . BLIMP PROP permitting lighter-than-air craft to back up in flight & hover motionless in air developed by Curtis-Wright Corp., Propeller Division.

ARMY NATIONAL GUARD being equipped with latest liaison plane, Cessna L-19. . . . TRIPHIBIAN is new name for Grumman SA-16A Albatross amphibian equipped with special skid which permits landings on sea, ground or ice. . . . FOKKER Aircraft of Amsterdam requested by KLM Royal Dutch Airlines to design jet transport. . . . MATS Boeing C-97 Stratofreighter flew non-stop from Honolulu to San Antonio, Texas, 4,000 miles, in 11 hrs. 59 min., averaging 333 mph. . . .

RAF VAMPIRE jet fighters are in action against communist ground forces in Malaya. . . . FOUR HUNDRED GALLONS per minute pumping rate of new aircraft refueling truck developed by Standard Oil Co. for gassing up airliners. . . . UNITED NATIONS Air Forces which include U.S.A.F., Royal Australian A.F., Southern African A.F. & Royal Hellenic A.F. flew 200,380 sorties in Korea, from June 26, 1950 through May 21, 1951. . . . FLORIDA led all states last year in installation of air markers, with 165 new ones completed. . . . BIG LIFT: 70,000 lb. load, heaviest ever carried by production airplane, lifted by AF Douglas C-124 Globemaster II. Plane weighed 210,000 lbs. at take-off, 35,000 lbs. more than its design gross load.

ELECTRONIC GADGET called Gust Alleviator, designed by British Boulton Paul concern, smoothens bumps caused by gusty air to provide more comfort for airline passengers. . . . LARGEST FLYING BOAT is British Saunders Roe "Princess," spanning 219 ft. and powered by ten turbo-prop engines. Gross weight 330,000 lbs., capacity 105 passengers. Will be used for high altitude trans-ocean flights.

NEW DIRECTOR of Women in the Air Force (WAF), Mary Jo Shelly, was president of Bennington College, Vt. She succeeds Col. Geraldine P. May. . . . RED PILOTS are bad shots, says Col. John C. Meyer, USAF's top living ace who served on Korean front. He asserts, only one F-86 Sabre hit during first 1000 individual flights.



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*Photograph at left shows panorama view of Love Field, Dallas, Texas, with Dallas Aviation School area indicated by dotted frame in upper portion.*

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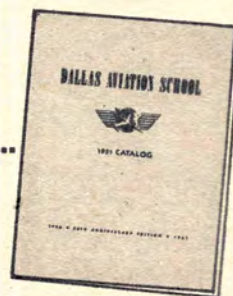
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# R-C

Around the modelplane radio-control circuit . . . comment and reports by a leading R-C authority

■ The thousands of active and potential R-C builders throughout the country have never had a common meeting ground where they could hash over R-C problems, check R-C club doings, learn latest commercial R-C offerings—in short, a column devoted to the Radio Control of Model Aircraft, its special problems and interests.

Now, this is the place to air views, present gripes (or orchids, if any!), learn the latest F.C.C. rules, etc. We want to hear from every reader who is active or "just interested" in R-C. Go ahead—swamp us! Let's find out once and for all just how much R-C interest there really is.

**"R-C Only" Clubs.** Quite a few now active, more being formed all the time, usually made up of model plane builders of all classes and categories, these groups are not really exclusive—even controliners are welcome! But R-C flying has its own little problems and interests, and its advocates naturally band together so they can stick solely to their favorite subject without having to digress to topics like, "How much rubber must I put in my Wakefield to get six minutes in still air?" Yep, R-C has its own problems, and clubs are where you find the answers. So far, we are certain of these:

**Chicago area.** Write to Clay Freese, 2019 Grove Street, Glenview, Ill. Very active group, most of them hams; hash out R-C problems on 10 meters each evening at 10 p.m. Have a beautiful flying field about 35 miles N.W. of Chicago.

**Washington, D.C.** Regular meetings at Walt Good's home in Bethesda, Md. (9802 Howard Ave.). During weekend visit with Walt we had pleasure of meeting several of his group. One ex-army flyer has built successful audio-tone rig. Walt, himself, besides trying to persuade F.C.C. to see things the modelers' way, is working out original Rudder Bug every chance he gets. This club flies at an inactive government field about 20 miles north of Washington (way out in the stix, no spectators to tramp on wings and knock over antennas, two huge concrete runways—oh, brother!)

**Pittsburgh area** boys fly at Wing Model Field, sparked by Lou Errington, Harry Geyer, Mike Thomas, etc. Active contest flyers. Group is known as Pittsburgh Flying Circuits; may be reached through Jim Schenck, 614 Ridgefield Avenue, Pittsburgh 16.

**Walnut Creek, California.** Northern Cal. R-C gang meets at home of E. L. Rockwood. Most fly large fast semi-scale ships with multi-channel audio-tone equipment.

Will other R-C groups tell us where they are located and where they fly? We'll help line up more members through these columns. Whether you have a real organization with formal name and regular meetings, or just a bunch of the boys who gather to chew over R-C, give us the word.

**New Equipment.** English-built E.C.C. radio equipment sold in U.S. by American Telasco Ltd., 55 W. 42nd St., N.Y. 18, includes 2½ oz. receiver using XFG-1 tube, various transmitters, a well-built versatile escapement, and a ½ oz. sensitive relay.

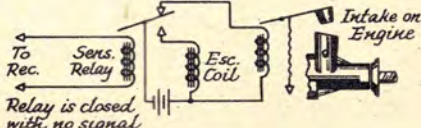
Vernon C. MacNabb Co., 909 E. Westfield Blvd., Indianapolis, Ind., offers 2-arm self-neutralizing ½ oz. escapement. Current drain 400-600 ma. on 2 pencils; built for reliability and long life. MacNabb also supplies Beacon 4-arm escapement.

Control Research, P.O. Box 9, Hampton, Va., offers conversion kit for all RK61 and XFG-1 receivers. Includes one additional tube and affords extreme sensitivity and stability compared to one-tube receivers.

Berkeley Models, West Hempstead, L.I., N.Y., will market compact Deluxe transmitter with whip-style antenna; case 10" x 4" x 3" includes all batts.

**New Circuit.** John Worth suggests a simple circuit (see diagram) for motor cut-out with little additional complexity. Applicable to any receiver and plane using 4-arm escapement. Escapement is operated as normally, but motor can be cut (or made to reduce speed) in any of the four half-positions; can be hooked up with 2-speed timer or used on glow engines with magnetically-operated butterfly valve. Most useful with Beep-Box as escapement goes through half-positions so fast you hardly hear motor cough. Usable with ordinary push-button control, but takes more practice.

**New Books.** "Model Control by Radio" by E. L. Safford, Jr., covers R-C from A to Z with chapters on such subjects as Basic Concepts, Transmission System, Receivers, Power Control Circuits, Servomotors, etc. (Radcraft Publications, 25 W. Broadway, (Continued on page 60))



Simple circuit for motor cut-out developed by Worth. Escapement operates normally.



# How Right these Readers Write!

Speaking of Air Trails, the leading magazine of air progress and aeromodeling, its readers tell the story best. Here are briefed comments from some of their letters which have appeared in print:

"The 'bible' for aeromodelers"—SAN FRANCISCO; "My favorite magazine"—CHICAGO; "Getting better with each issue"—TRIESTE; "Keeps one up to date"—QUINCY, ILL.; "I've learned most of what I know about aviation from Air Trails"—SHREVEPORT, LA; "Your mag is by far the best in planes"—YANKTON, S.D.; "It is enjoying great and growing popularity in Japan"—TOKYO; "Tops with me"—GRAND JUNCTION, COLO.; "A real magazine for the modeler"—MOUNTAIN GROVE, MO.; "It's perfect"—EL SEGUNDO, CALIF.; "Out of this world"—HAMILTON, ONTARIO; "Doing a wonderful job"—CHANUTE FIELD, ILL.; "Always a wide variety of plans and interesting reading"—JACKSON, MO.; "Orchids to you"—SPOKANE, WASH.; "A fine magazine"—GAMBIER, OHIO; "Each month's copy anxiously awaited"—FAIRBANKS, ALASKA; "Keeps getting better"—ZANESVILLE, OHIO; "The best"—TOLEDO, OHIO; "Excellent source of information for both air-minded and modeling enthusiasts"—HONG KONG; "The only thing wrong is that it is not published often enough"—SEMORA, N.C.; "Always my favorite"—WESTBROOK, MAINE; "The most interesting and complete of all magazines in its class"—HAWI, HAWAII; "Words can hardly express the thorough enjoyment I receive from it"—LIMA, PERU; "Any modeler without a subscription to Air Trails is sinfully lost"—DANVILLE, KY.

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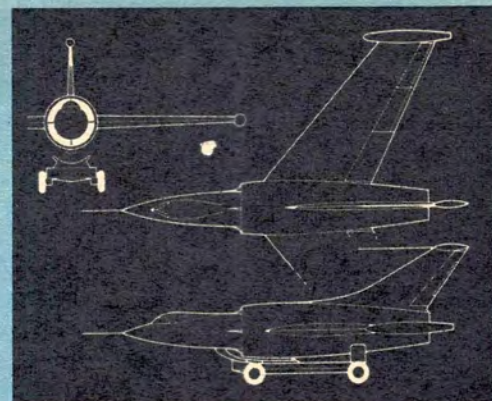
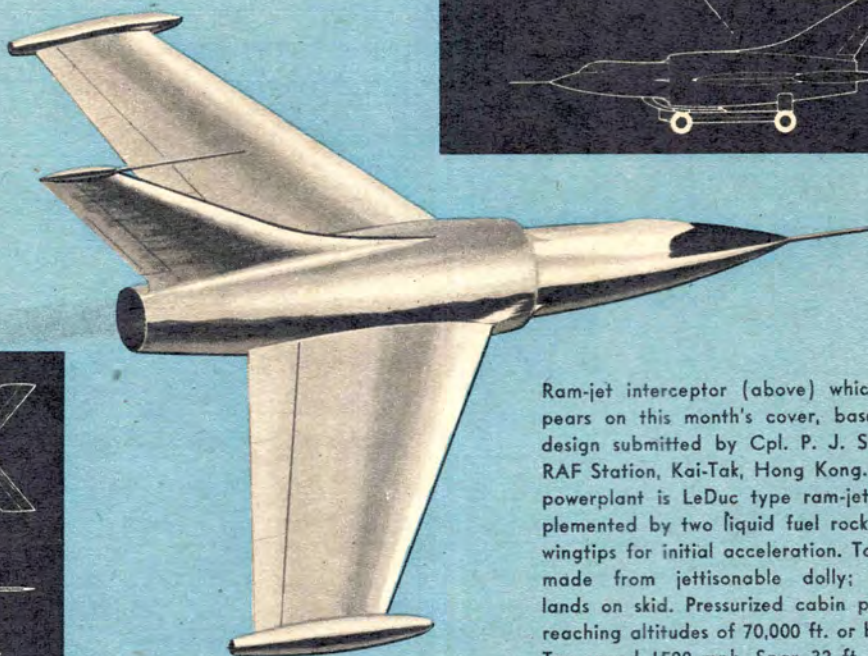
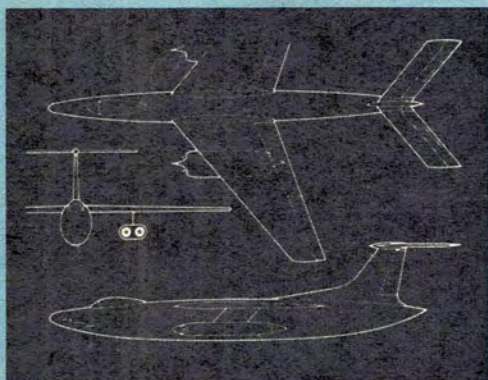
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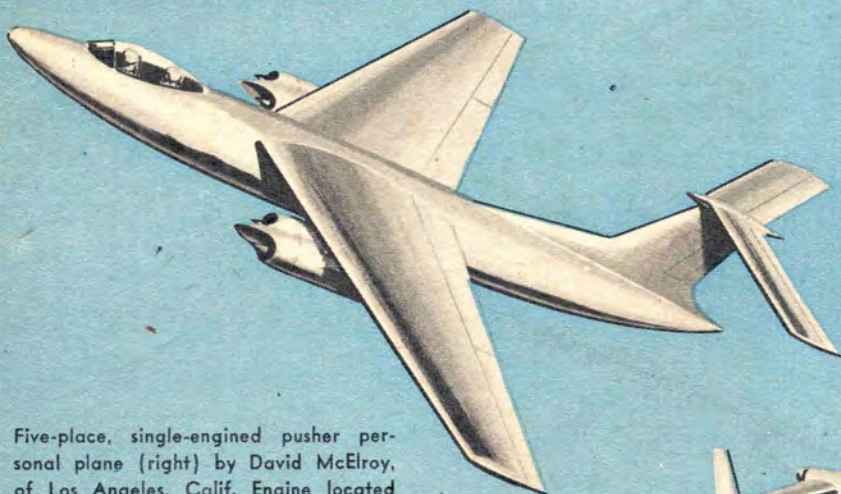
# Airmen of Vision

## DESIGN COMPETITION

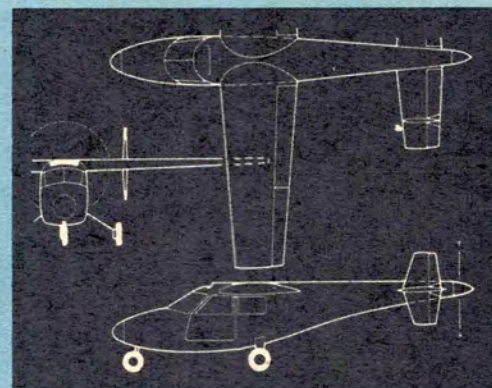
Four-engined bomber (below) by Erwin Ewry of Chicago, Ill. A neat, clean design which should give excellent performance. Plane has wingspan of 69 ft., 40 deg. sweepback; length 57 ft. Power plants: four 5200 lbs. thrust jet engines paired in two nacelles. Armament: machine guns in nose, internally stowed bombs and rockets. This type of armament is well suited for ground support duty. Speed 750 mph, range 2000 mi.



Ram-jet interceptor (above) which appears on this month's cover, based on design submitted by Cpl. P. J. Snodin, RAF Station, Kai-Tak, Hong Kong. Main powerplant is LeDuc type ram-jet, supplemented by two liquid fuel rockets at wingtips for initial acceleration. Take-off made from jettisonable dolly; plane lands on skid. Pressurized cabin permits reaching altitudes of 70,000 ft. or better. Top speed 1500 mph. Span 32 ft.



Five-place, single-engined pusher personal plane (right) by David McElroy, of Los Angeles, Calif. Engine located above and behind pilot at center of gravity for better controllability. Driving a propeller in rear of fuselage through extension shaft, the 185 hp flat-six is cooled by air entering through scoop at cabin top. Span 34 ft., length 30 ft., max. speed 150 mph. Normal cruising range 600 mi.



Air Trails has opened its columns to those who are interested in presenting plans for "aircraft of the future." Rules governing the competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8 1/2 x 11 inches for the entire three views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information on power plant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and

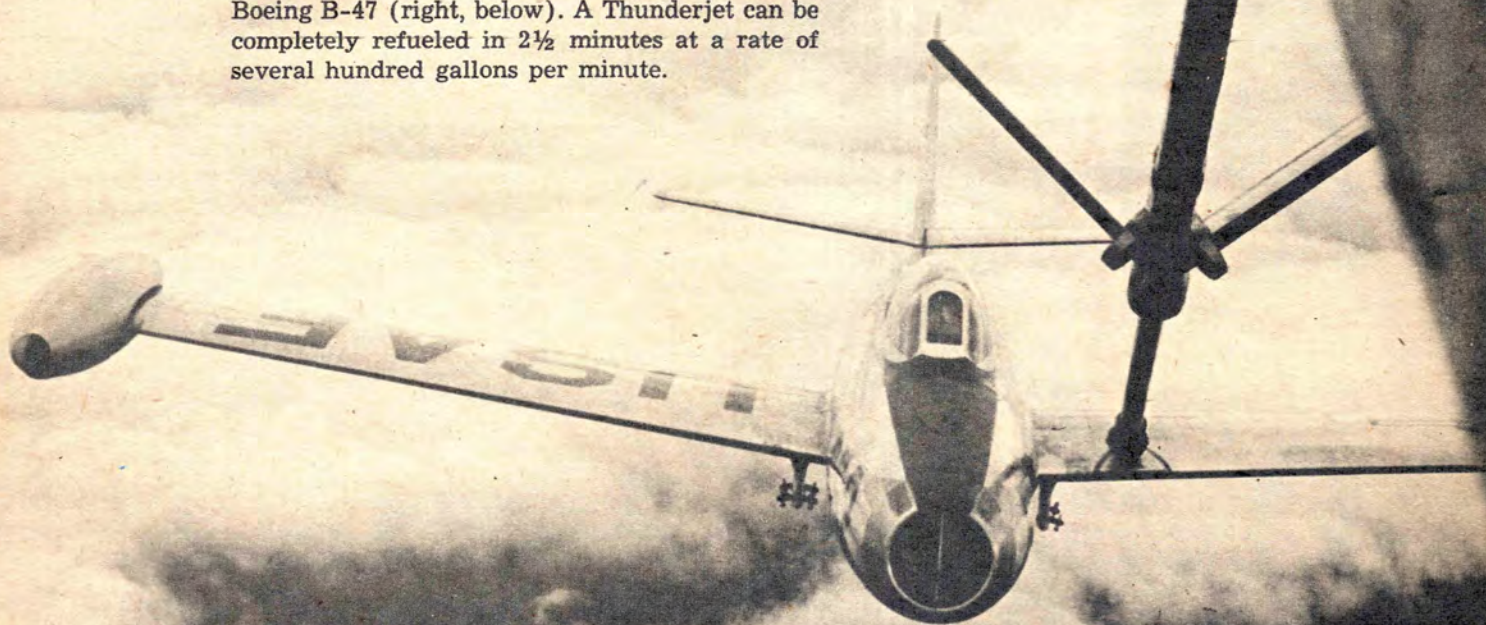
Judges. The designs may be of any type, commercial aircraft, military planes (fighters, bombers, troop transports), planes for the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of \$25. Payments of \$5 will go to the runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Editors regret that because of large number of entries they cannot enter into correspondence on A. of V.



# EVERYBODY'S DOIN' IT!

■ First operational jet fighter to roll off the production line fully equipped for mid-air refueling by tanker plane is this F-84G Republic Thunderjet. Here it is being refueled from a Boeing KB-29P Superfortress. Single-point in-flight refueling heralds the beginning of an era of increased flexibility and mobility for U.S.A.F. fighter forces.

The F-84G's refueling system is designed for use with the Boeing-developed flying boom method of in-flight refueling. This is the same system employed for the mid-air refueling of the North American RB-45C (left, below) and the Boeing B-47 (right, below). A Thunderjet can be completely refueled in 2½ minutes at a rate of several hundred gallons per minute.







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## Air Mobilization

The volunteer system of the Air Force and Navy is bringing recruits of no prior military experience. These services have long guarded the right to volunteer because the men thus gained are those most interested in the outfit they join.

No longer, however, can the air forces have so much of the mental cream. Because the ground forces were getting the culls, it was decided to impose a system of "qualitative distribution" whereby the recruits for each service would not exceed 8% in Class 1 and 32% in Class 2. (The first two mental grades are those from which officer candidates may be drawn.)

That leaves 60% in Classes 3 and 4. Whether the men come from the draft or from volunteer enlistments, the ratio is applied.

As the average intelligence level becomes lower, pre-training is the more important as it will take the average recruit longer to learn his work. So it is best to start prior to his term of service.

In recent months, the Air Force and Navy have had difficulty meeting their quotas by volunteers and may have to resort to the draft. Selective Service, however, has a pool of young men who have taken their physical exams but have not been called to duty. If they were allowed to volunteer, the needs might be met, but still subject to the "divvy" of the best mentally qualified men.

That makes it urgent for the services to begin setting up their own pre-induction programs, as in Russia, so that young people interested in aviation can learn both by model building and actual flying. The CAP points the way.

Civil Air Patrol will expand its Cadet program by dropping the requirement that Cadet units will be formed only where Senior units (ages 18 and up) are at work.

Now a CAP Cadet Squadron or Flight may be organized wherever there is a competent adult to supervise.

Of course the local Commandant of Cadets will be responsible to the Commanding Officer of the nearest Senior CAP unit. The same standards of military and preflight training apply to outlying Cadet units as to those directly attached to Seniors.

There are now more than 1450 Senior CAP units in the United States. The number of Cadet units,

heretofore held within this number, now can be much larger. CAP has been growing at the rate of about 1,000 per month. Latest strength reports show 51,000 Senior and 35,000 Cadet members.

Another new CAP plan is the purchase of aircraft for member flying, in addition to the 400 military liaison-type planes assigned by the Air Force and spread thinly among the 1,450 units throughout the states and territories. Plenty of used planes are available. Col. Don Webster, D.C. Wing Commander, has arranged for low-interest loans to be guaranteed by the CAP Corporation while the local units pay for their planes by easy installments.

CAP does not give flight training but holds ground school, with volunteer instructors, and takes its Cadets on orientation hops to give them the feel of flying. Some units have raised flight scholarship funds to teach outstanding Cadets to fly with local operators. The CAP-owned planes will be used for proficiency flying, for practice missions, and for real emergencies when they come.

Other countries are doing it, as CAP Cadets are finding in the exchange tours this summer among 14 countries. Maj. Gen. Lucas V. Beau, National Commander, recently observed powerless flight activity in Switzerland, Sweden, Holland, and Denmark, as well as in Western Germany where permission has recently been granted.

Civil defense flying plans, after long delay, at last are taking shape. An informal group of civil aviation associations known as the Emergency Aviation Council, since official groups fussed for many months with reports that never seemed to reach conclusions, started to work soon after the Korean War began.

It was recommended that each state name a chief of civil defense aviation, over county or area chiefs who would organize local units of volunteer flyers along the lines of CAP. In some states, it has been supposed, CAP could be accepted by the state to do the job. In others, the state would form its corps.

After approval by the interdepartmental Air Coordinating Committee, this plan long awaited the appointment of an aviation head in the Federal Civil Defense Administration. As it is, aviation is still subordinated under defense transportation in the official plan. But the states are not bound by Washington instructions and can give their lightplane fleets their proper place.

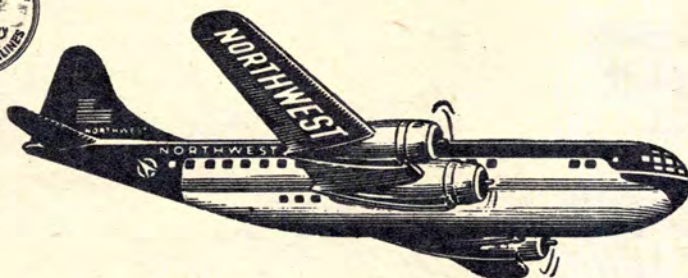
Meanwhile, there has been much dickering between civil aviation people and (Continued on page 68)



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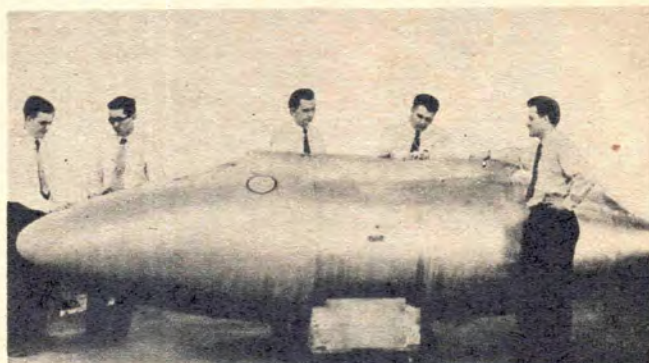
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The SPARTAN graduates, top photo, are part of a group one of the oldest aircraft development companies — and foremost producer of military aircraft during World War II — has employed at SPARTAN.

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|--------------------------------------|--|
| <input type="checkbox"/> Flight      | <input type="checkbox"/> Instruments                     |
| <input type="checkbox"/> Mechanics   | <input type="checkbox"/> Aeronautical Engineering        |
| <input type="checkbox"/> Radio       | <input type="checkbox"/> Airline Maintenance Engineering |
| <input type="checkbox"/> Meteorology | <input type="checkbox"/> Flight Engineer                 |

*Spartan is approved for training under the G. I. Bill of Rights*

**SPARTAN**  
A UNIVERSITY OF AVIATION



SCHOOL OF AERONAUTICS  
MAXWELL W. BALFOUR, DIRECTOR

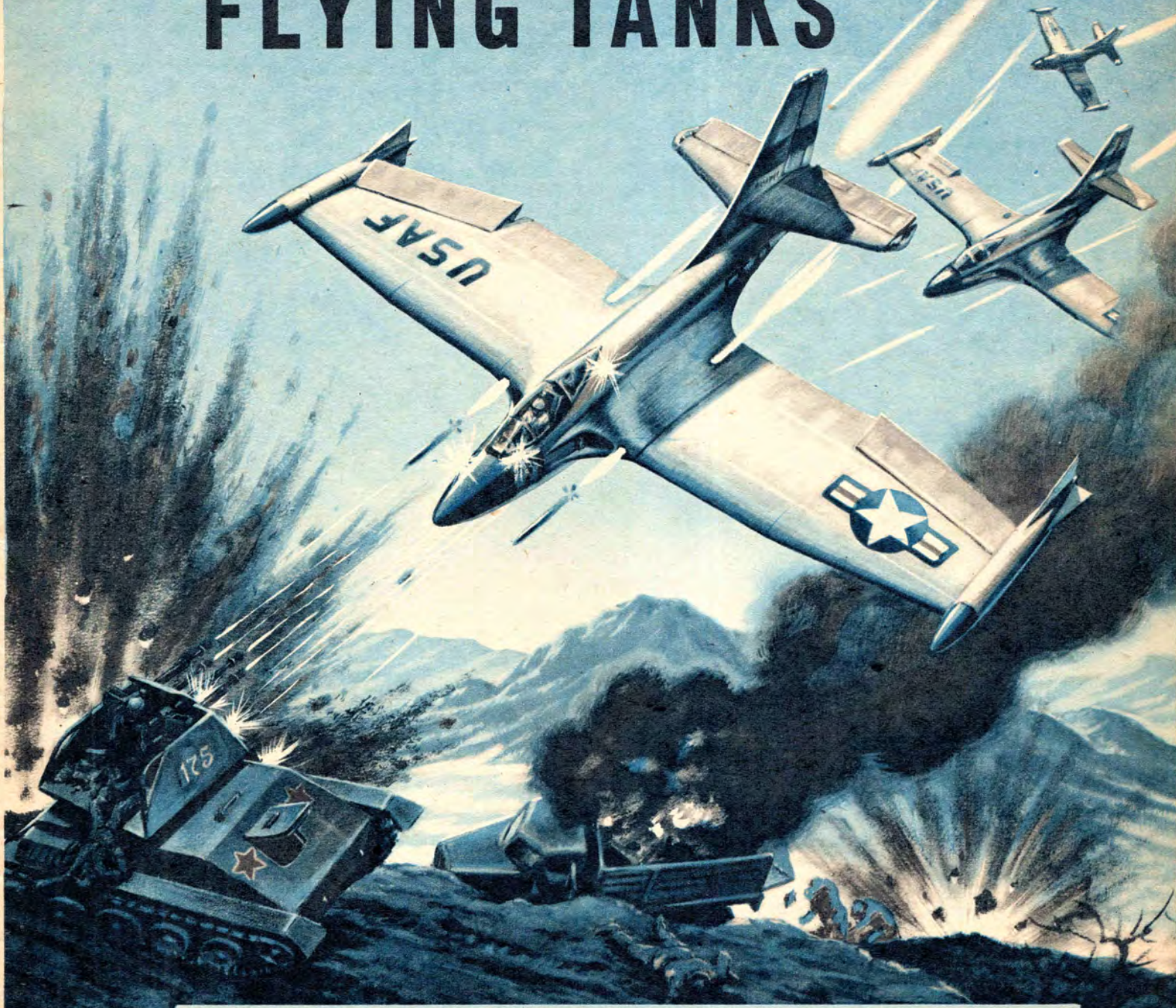
COLLEGE OF ENGINEERING  
ADDRESS DEPT. AT-91

TULSA, OKLAHOMA



AMERICA'S NO. 1 NEED . . .

# FLYING TANKS



■ A tough, heavily armored ground-strafting plane, which can bull its way in through clouds of flak, deliver its big punch and get out again in one piece is considered the No. 1 need of the Air Force. The current super-speed, hi-flying fighter plane, costing around half a million, loaded with special gadgets useful only at altitude is pretty much wasted in ground attack work, say the

ground forces. Skimpily armored and wide open to any kind of flak, quite a few were brought down or badly beaten up in Korea by everything from burp gunfire to showers of hand-heaved stones. Now that the jets have proven to be unusually stable gun platforms and fully capable of efficient, on-the-deck operations, the logical development is an expendable Flying Tank.

Text and Art by FRANK TINSLEY



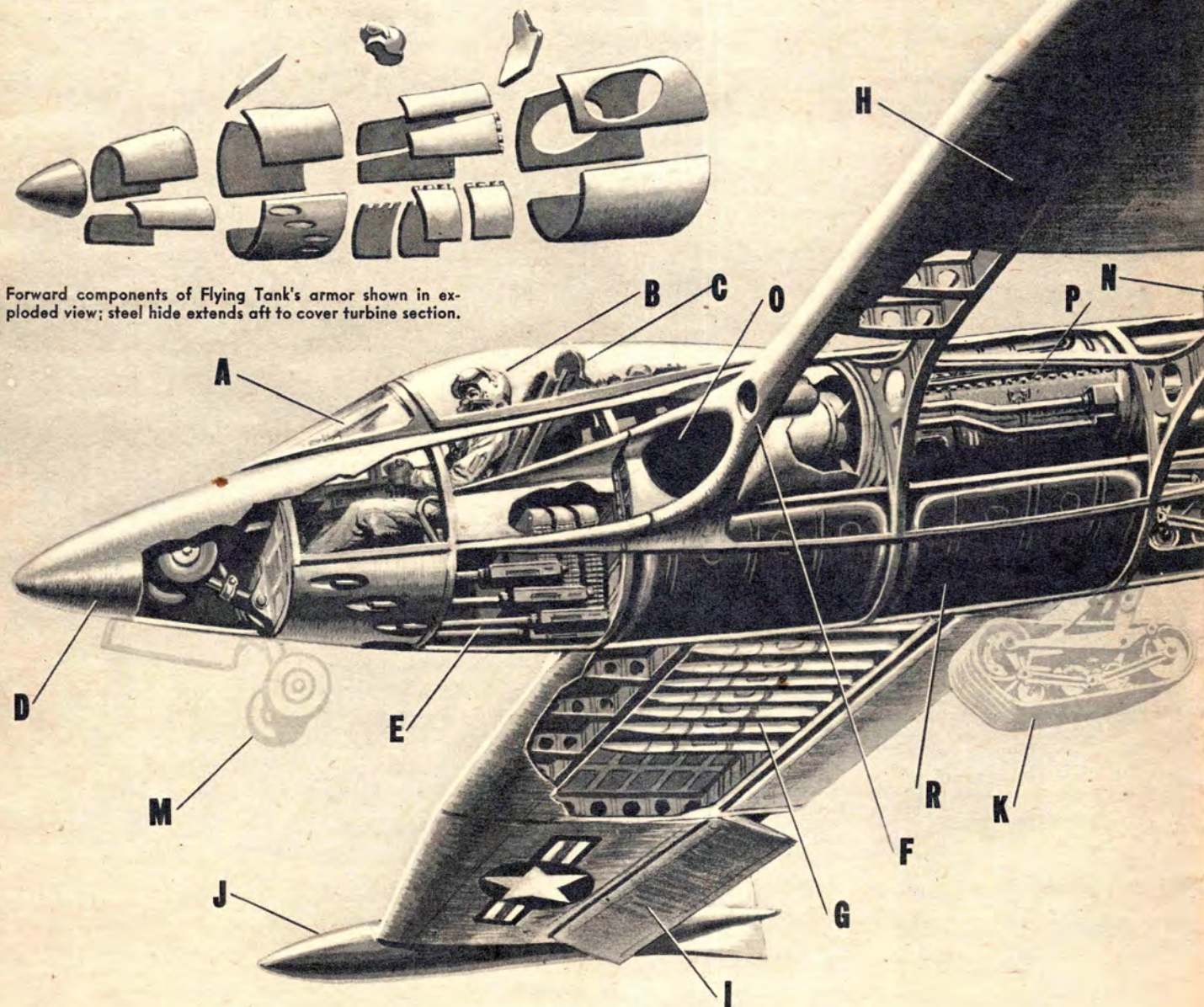
Grover Loening, veteran designer and N.A.C.A. consultant believes the 10,000 lb. thrust jet engine now makes possible an attack plane as heavily armored as any tank. The jet eliminates the vulnerable propeller and provides sufficient power to lift the armor's great weight.

The Flying Tank must be a highly expendable item designed for inexpensive mass production. The wing should be made of easily replaceable panels, squarish in plan form and with constant section and chord wherever practicable; it must be lightly loaded and of great area. This is not too much of a liability as it permits the use of internal rocket magazines and the new, Navy automatic launcher. Removable tip tanks for long-range ferrying would be interchangeable with Napalm or H. E. bombs.

To avoid the possibility of frontal fire penetrating to the compressor, the intake duct is of the "Y" type with ports in the wing roots, well outboard of the engine. The latter, complete with an afterburner for combat boost, is mounted in the upper half of the fuselage. Below it, separated by a floor type firewall, are the fuel cells with the new, English explosion retarders.

An unusually rugged landing gear handles the outsize loads developed. A track type main gear, slung beneath the fuselage just aft of the C.G., absorbs the initial impact.

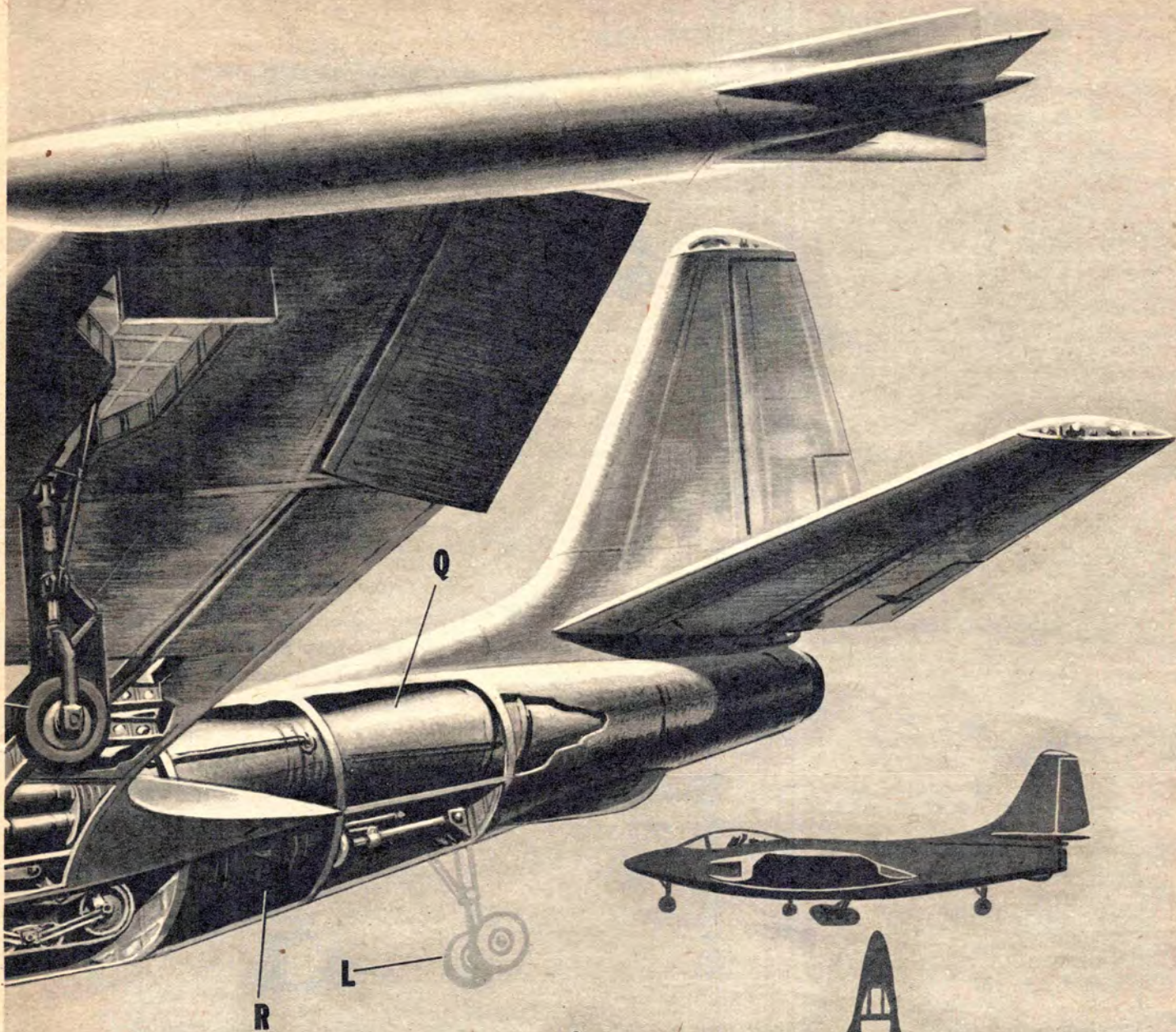
The Flying Tank is not a pretty plane but neither is the job it is designed to do. With the ever-increasing importance of efficient ground support aviation, it has a distinct place in our combat team.



Forward components of Flying Tank's armor shown in exploded view; steel hide extends aft to cover turbine section.

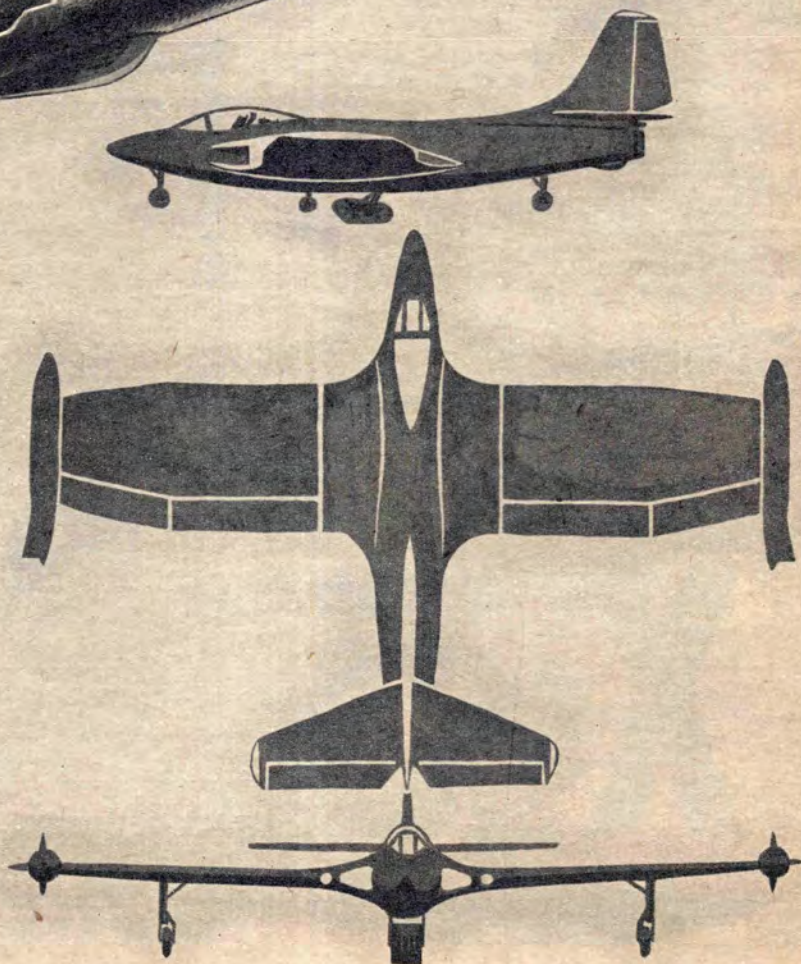
The super-power jet engine makes the heavily armored ground attack plane a practical possibility by eliminating its Achilles heel—the vulnerable propeller. The big question is: when do we get them?



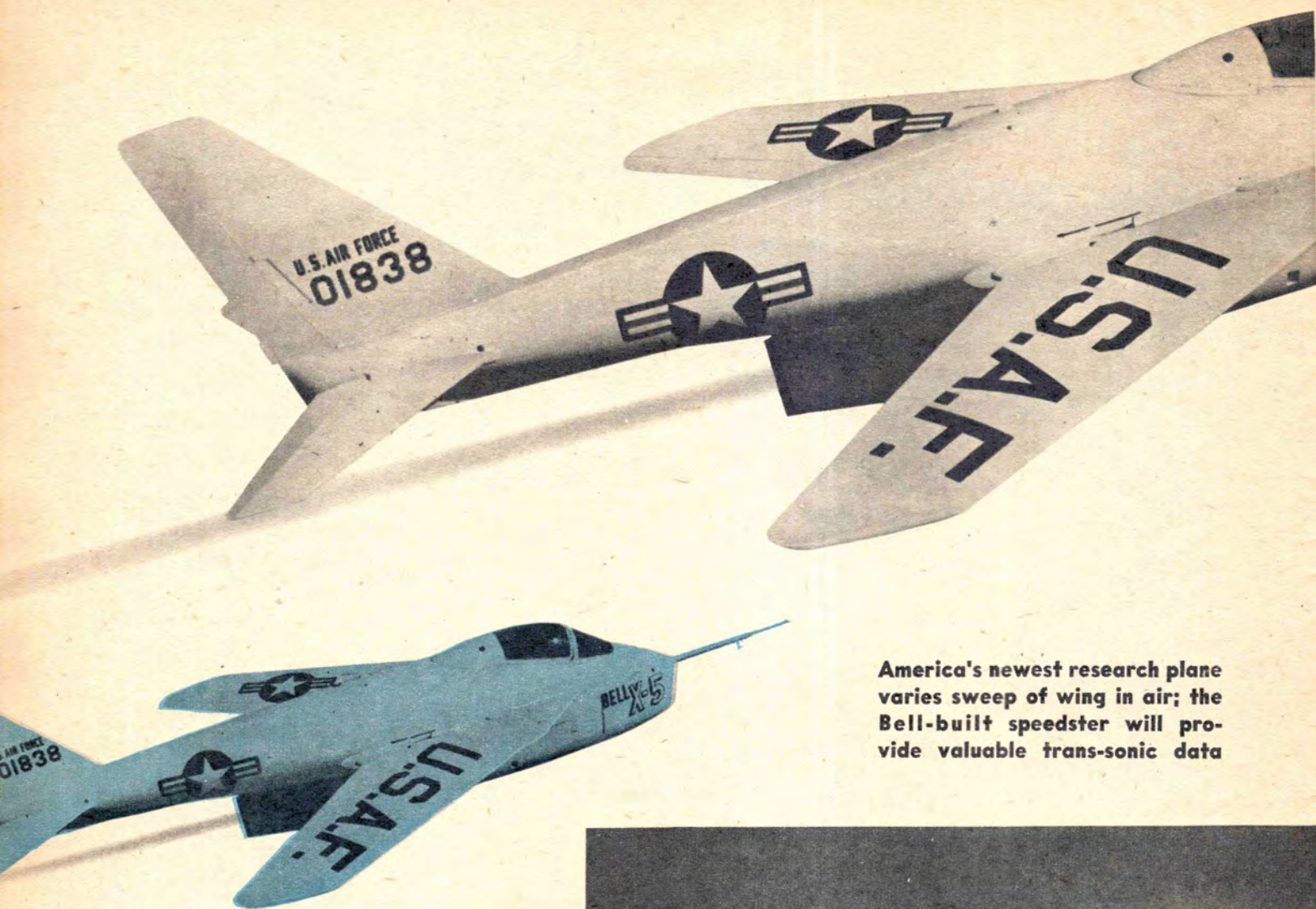


### IMPORTANT FEATURES OF THE FLYING TANK

- A—Bullet-proof windshield
- B—Pilot's flak-proof helmet
- C—Rear cockpit armor
- D—Heavily armored nose cone
- E—Six 20-mm shell guns
- F—Rifled auto, rocket launcher
- G—Rocket magazine in inner wing panel
- H—Large area wings to carry weight of armor
- I—Northrop type "deceleron" aileron/air brake
- J—Wingtip fuel tanks or Napalm bombs
- K—Main track landing gear to take heavy impact
- L—Tail wheels for initial landing
- M—Ship drops onto nose wheels after initial impact is absorbed
- N—Steadying side wheels for taxiing
- O—Divided engine air intakes
- P—10,000 lb. thrust axial jet engine
- Q—Afterburner
- R—Self-sealing fuel coils







America's newest research plane varies sweep of wing in air; the Bell-built speedster will provide valuable trans-sonic data

# X-5







■ Bell's X-5 "flying guppy," the first aircraft with variable sweep wings, will have all the advantages of conventional wing aircraft in take-off and climb, then can increase its sweep-back in flight while simultaneously compensating for the resulting shift of the center of gravity. Built for NACA trans-sonic speed studies, X-5 is 33' 4" long, 12' from ground to tip fin. Wing-span is 32' 9"; weight, approx. 10,000 lbs. Pitot tube boom is an additional 8'. Power is 4,900 lb. thrust axial flow Allison J-35-A-17 turbo-jet engine slung under the cockpit. Unlike Bell's X-1, the new research plane will take off under its own power and is capable of sustained flight over longer periods. The enameled white plane has leading edge slats in the wings to increase lift and reduce stalling speed. Bell is also working on the X-2, a rocket-powered research craft with sweptback wings with some parts made of stainless steel, as well as X-1A, X-1B and X-1D.



Each wing of Flying Guppy has specially designed fairing so leading edge presents smooth airfoil regardless of angle; two dive brakes in sides forward of cockpit provide rapid deceleration.

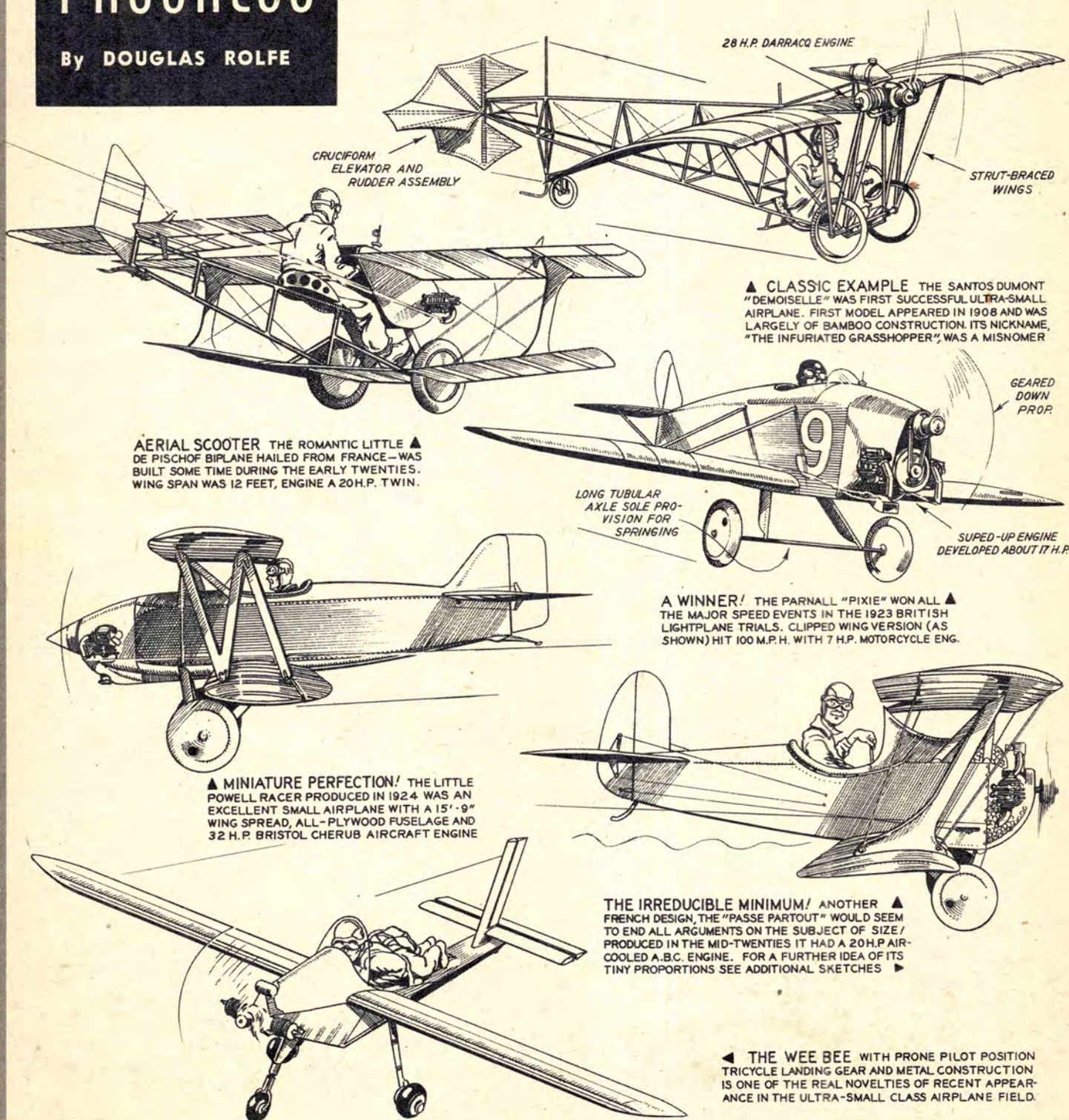




# AIR PROGRESS

By DOUGLAS ROLFE

## WEE ONES: Some Successful Ultra-Small Planes



▲ AERIAL SCOOTER THE ROMANTIC LITTLE ▲  
DE PISCHOF BIPLANE HAILED FROM FRANCE—WAS  
BUILT SOME TIME DURING THE EARLY TWENTIES.  
WING SPAN WAS 12 FEET, ENGINE A 20 H.P. TWIN.

▲ CLASSIC EXAMPLE THE SANTOS DUMONT  
"DEMOISELLE" WAS FIRST SUCCESSFUL ULTRA-SMALL  
AIRPLANE. FIRST MODEL APPEARED IN 1908 AND WAS  
LARGELY OF BAMBOO CONSTRUCTION. ITS NICKNAME,  
"THE INFURIATED GRASSHOPPER," WAS A MISNOMER

▲ A WINNER! THE PARNALL "PIXIE" WON ALL ▲  
THE MAJOR SPEED EVENTS IN THE 1923 BRITISH  
LIGHTPLANE TRIALS. CLIPPED WING VERSION (AS  
SHOWN) HIT 100 M.P.H. WITH 7 H.P. MOTORCYCLE ENG.

▲ MINIATURE PERFECTION! THE LITTLE  
POWELL RACER PRODUCED IN 1924 WAS AN  
EXCELLENT SMALL AIRPLANE WITH A 15'-9"  
WING SPREAD, ALL-PLYWOOD FUSELAGE AND  
32 H.P. BRISTOL CHERUB AIRCRAFT ENGINE

THE IRREDUCIBLE MINIMUM! ANOTHER ▲  
FRENCH DESIGN, THE "PASSE PARTOUT" WOULD SEEM  
TO END ALL ARGUMENTS ON THE SUBJECT OF SIZE/  
PRODUCED IN THE MID-TWENTIES IT HAD A 20 H.P. AIR-  
COOLED A.B.C. ENGINE. FOR A FURTHER IDEA OF ITS  
TINY PROPORTIONS SEE ADDITIONAL SKETCHES ▶

◀ THE WEE BEE WITH PRONE PILOT POSITION  
TRICYCLE LANDING GEAR AND METAL CONSTRUCTION  
IS ONE OF THE REAL NOVELTIES OF RECENT APPEAR-  
ANCE IN THE ULTRA-SMALL CLASS AIRPLANE FIELD.

How small can the airplane be? Well, judging by some of the samples shown on these pages, there have been quite a number of little ships built over the years which despite their diminutive size can qualify as real airplanes rather than powered gliders.

First truly small successful airplane was undoubtedly the

Santos Dumont "Demoiselle" which flew quite well with very small pilots, but had a time getting unstuck when larger pilots tried it. Audemars and Garros, both men of decidedly small stature, hung up several records with this tiny ship.

Exact figures on some of the older designs are difficult to come by nowadays, but all the types illustrated here were



CURTIS-REED ONE-PIECE  
DURALUMIN PROPELLER

AILERONS ON UPPER  
AND LOWER WINGS



▲ AN ITALIAN VENTURE  
THE BRED A TRIPLANE DATES FROM  
THE EARLY TWENTIES. WINGSPREAD  
WAS 13 FEET — TOP SPEED 106 M.P.H.

20 H.P. 2-CYCLE METEOR MOTOR  
WEIGHED ONLY 60 POUNDS

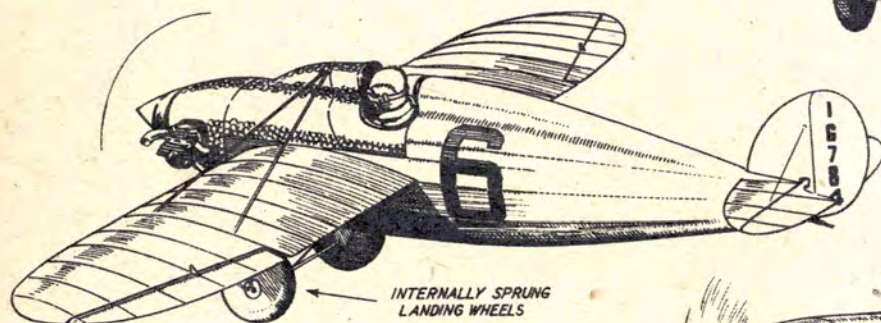


AILERONS ON LOWER  
WINGS ONLY

▲ MYERS MIDGET THIS 16-FOOT  
SPAN RIGID-TRUSS BIPLANE WAS ONE  
OF THE MOST ORIGINAL DESIGNS BUILT  
FOR THE 1924 U.S. LIGHTPLANE CLASS  
CONTEST. — MAXIMUM SPEED 90 M.P.H.

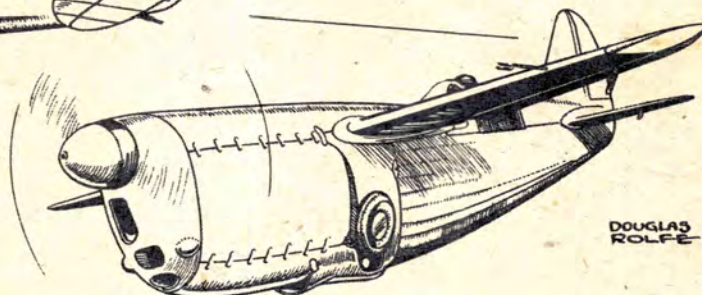


AILERONS ON UPPER  
WINGS ONLY



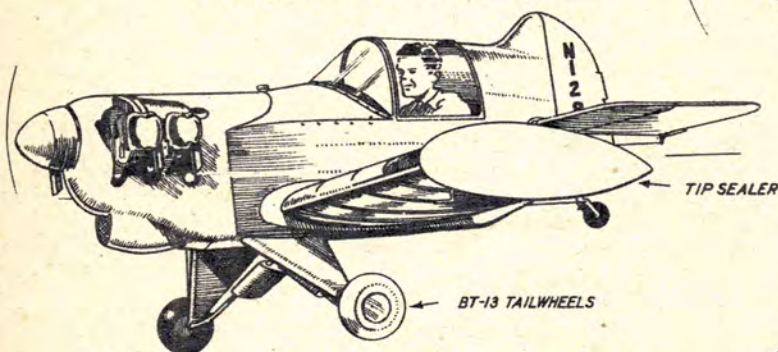
INTERNALLY SPRUNG  
LANDING WHEELS

▲ ONE OF THE BEST YET AVIATION ENGINEERS  
TODAY MIGHT LEARN SOMETHING FROM THE HEATH  
"BABY BULLET" DESIGNED 23 YEARS AGO. WITH A  
32 H.P. ENGINE THIS EXTERNALLY BRACED MID-WING  
MONOPLANE HAD A MAXIMUM SPEED OF OVER 150 M.P.H.



DOUGLAS  
ROLFÉ

A NOSY CHARACTER! THE FLOYD ▲  
BEAN "SPECIAL" HAD A MERE 12-FT. WING-  
SPREAD BUT PROMINENT NOSE COWLING HID  
A 400-H.P. ENGINE. — TOP SPEED, 350 M.P.H.



TIP SEALER

BT-13 TAILWHEELS

▲ THE LAST WORD! CURRENT HOLDER OF TITLE  
TO CLAIM AS WORLD'S SMALLEST AIRPLANE THE STITS  
JUNIOR HAS A WINGSPREAD OF ONLY 8 FT. 9" MOUNTS  
AN 85 H.P. CONTINENTAL ENGINE, HITS OVER 170 M.P.H.



U.S. STITS JR.



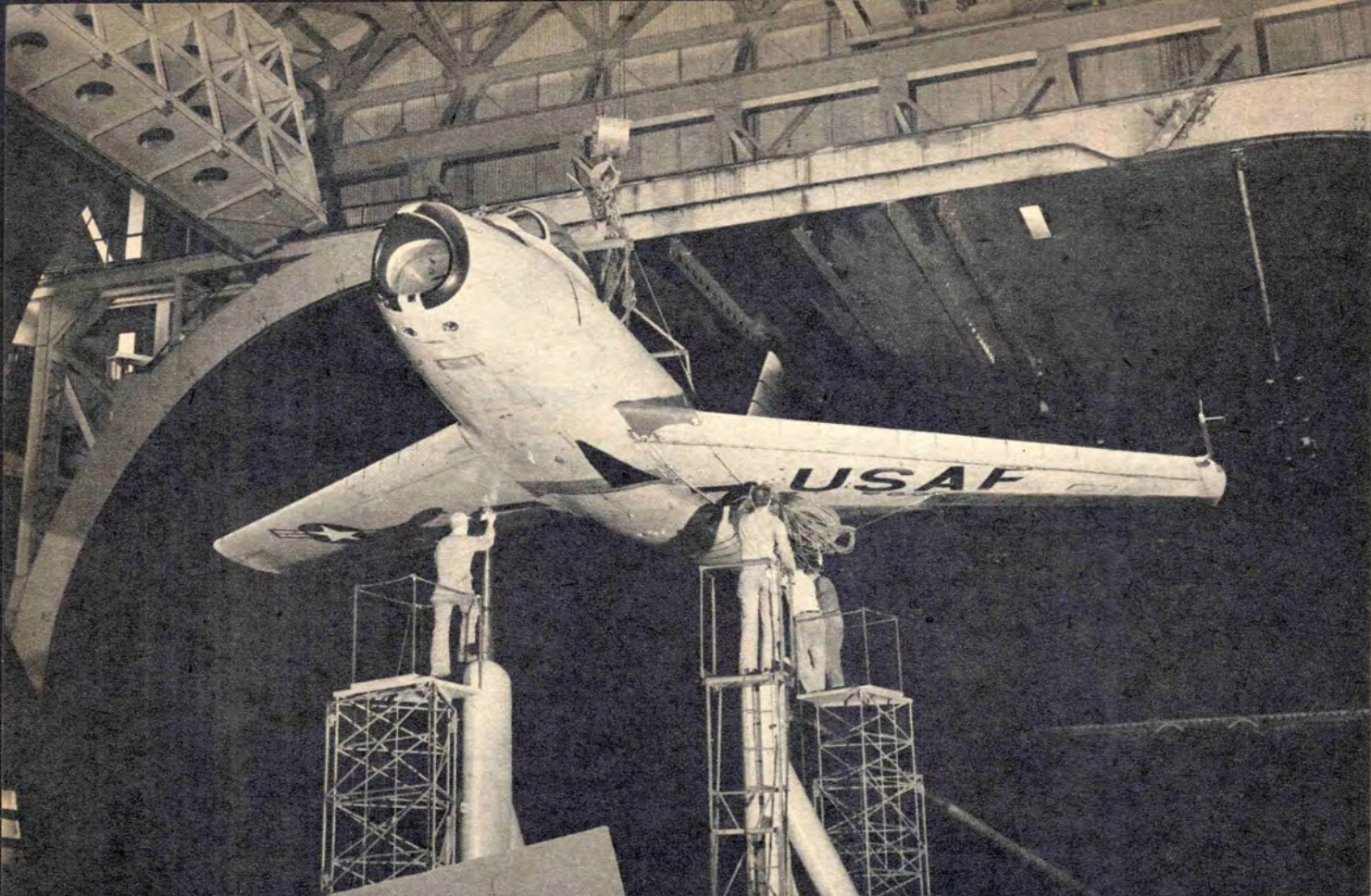
FRENCH "PASSE PARTOUT"

WORLD'S SMALLEST ?

actually built and flown and none exceeded 18 feet in wing-spread. Best of the older designs were probably the Heath "Baby Bullet," the Parnall "Pixie" and the Irwin "Meteorplane," in that order. First and last designs mentioned had genuine aircraft engines; the "Pixie" relied on a small, hotted-up motorcycle engine. Yet even with this drawback

it flew well and had a most extraordinary turn of speed. Chief objection to the ultra-small airplane is that despite its eye appeal it is not too comfortable to fly and is apt to be very tricky. Note: Designs selected are only a few of the more interesting junior-size airplanes produced over the years. The challenge involved has fascinated many builders.

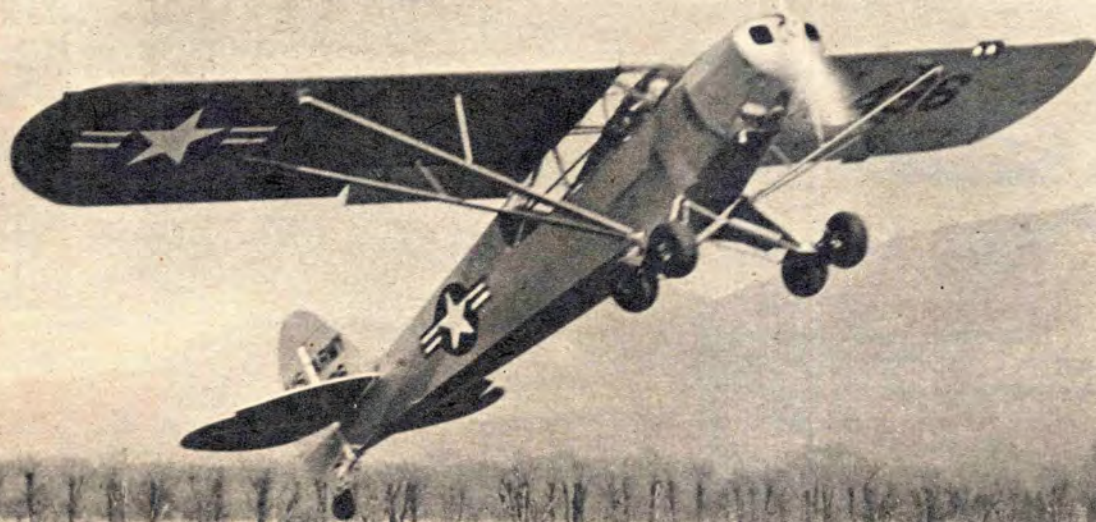




## DOUBLE HANGING

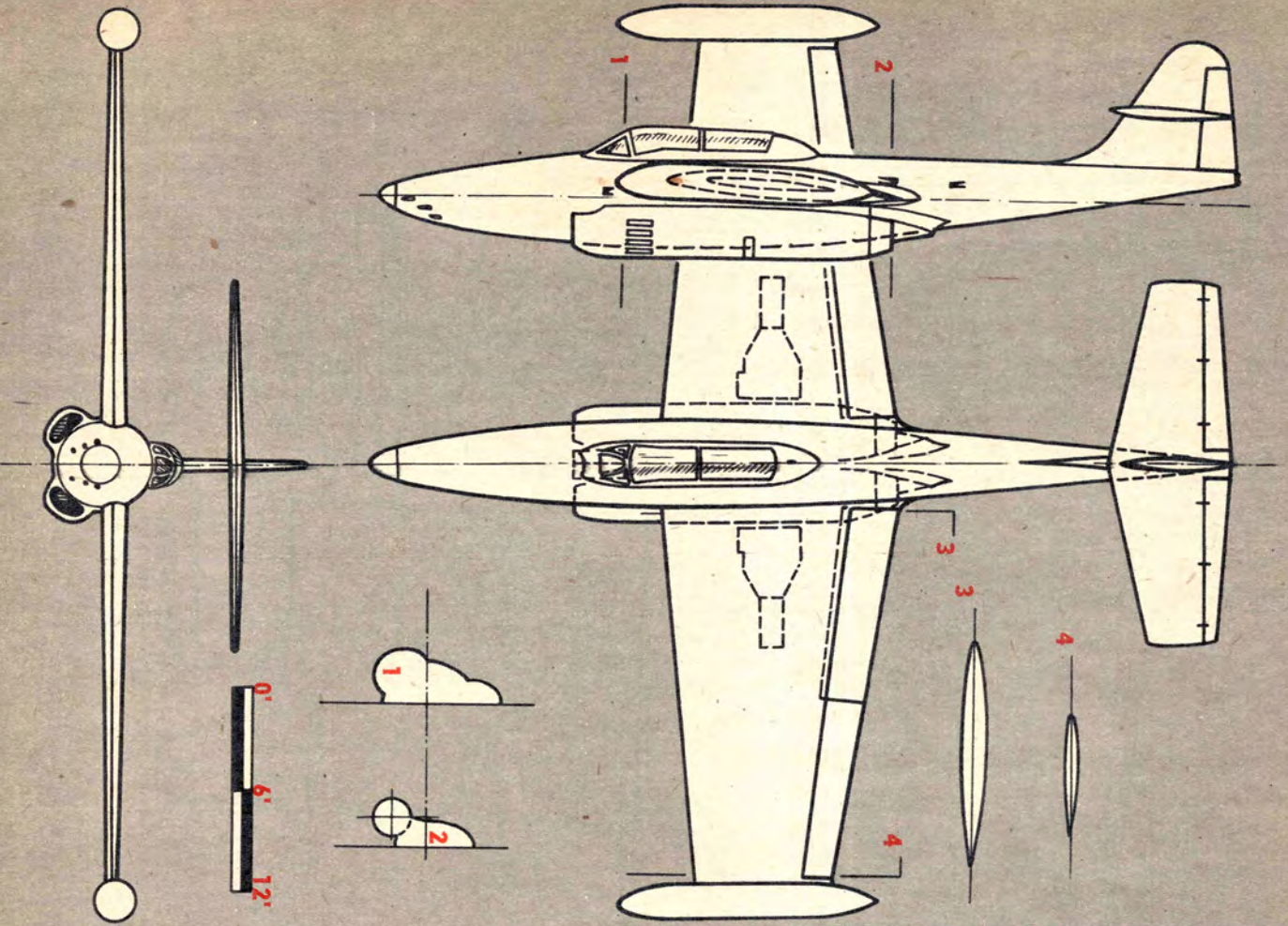
F-86 is mounted in 40 x 80 ft. test section of 250-mph world's largest wind tunnel operated by NACA's Ames Aeronautical Laboratory at Moffett Field, Calif., for study of air-flow on swept-back wings at landing speeds.

Army L-21 observation reconnaissance plane by Piper gets off with full military load in 270 ft. Powered by Lycoming 125 hp engine, L-21 can clear 50 ft. obstacles 510 feet from standing start. L-18C is the 90 hp model.



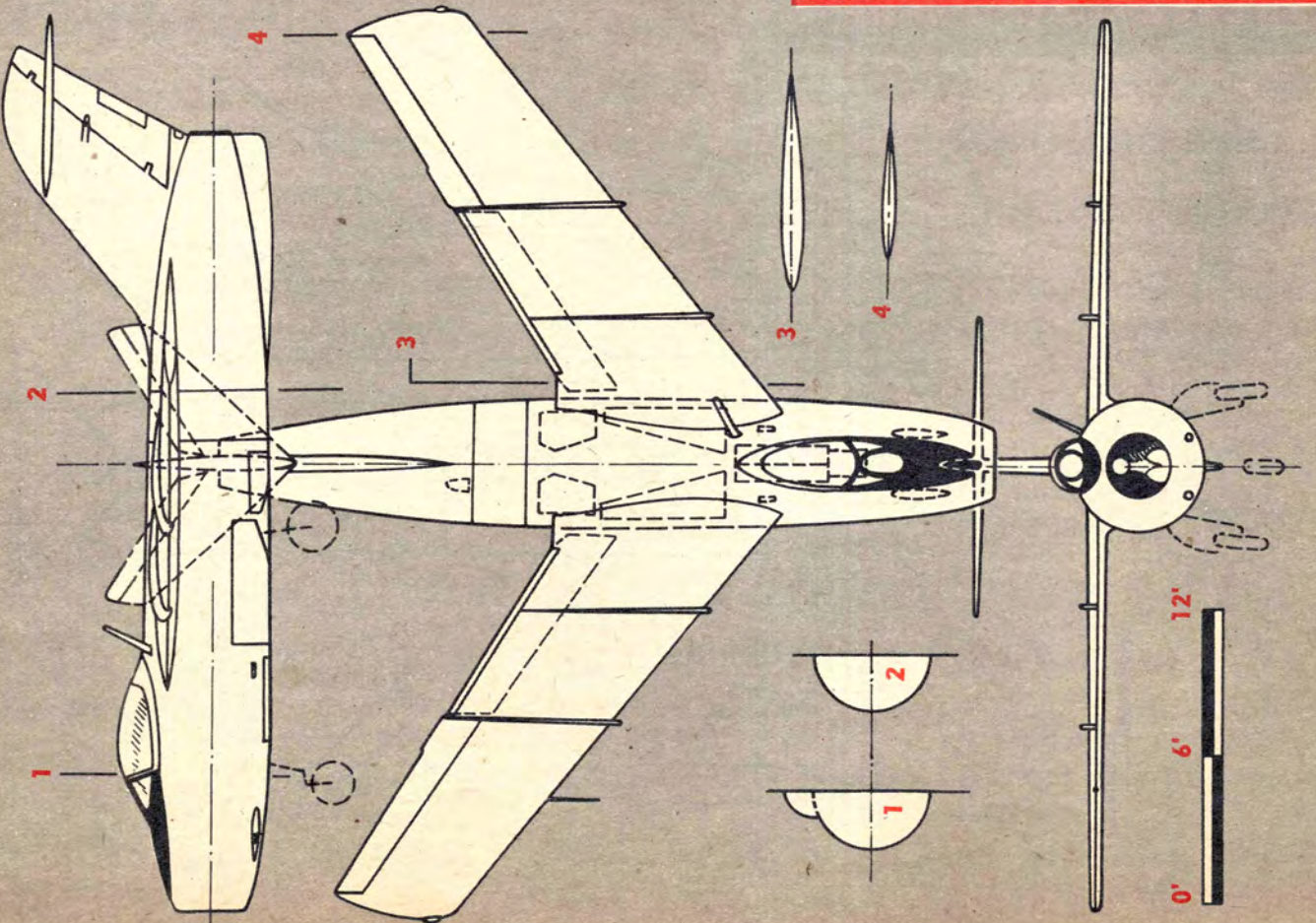


**NORTHROP F-89 SCORPION**



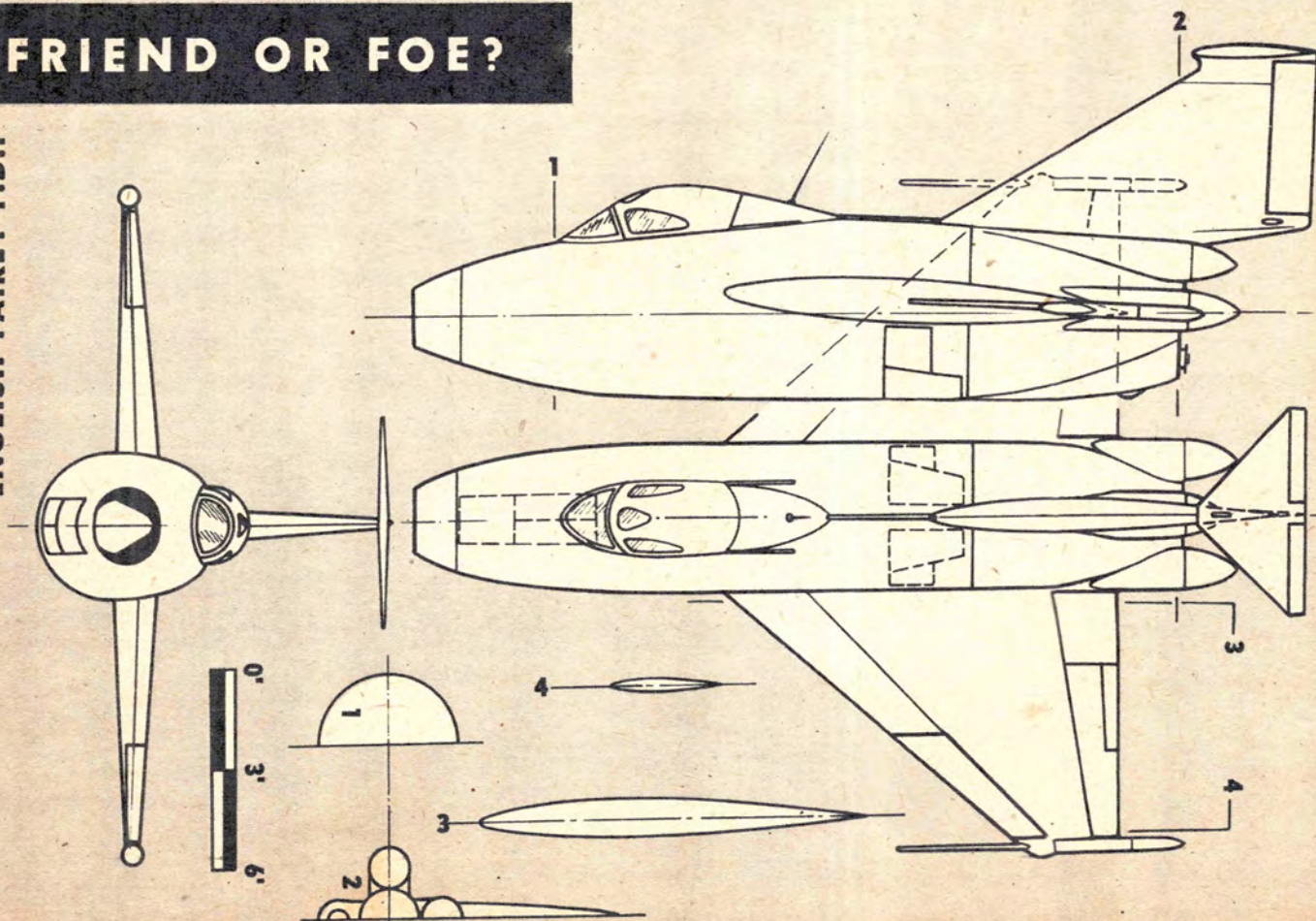
**FRIEND OR FOE?**

**RUSSIAN LA-17**



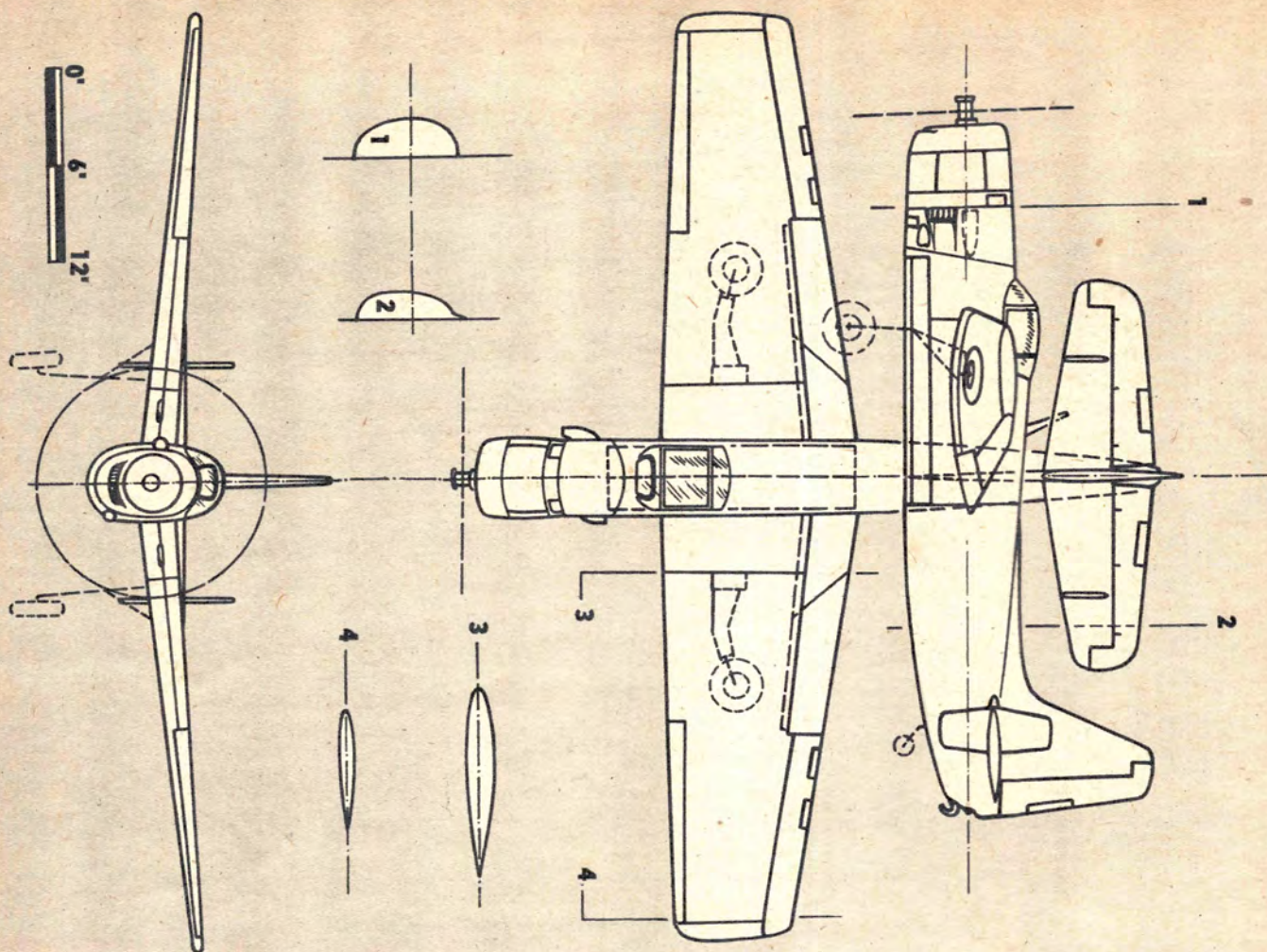


ENGLISH FAIREY F.D.1

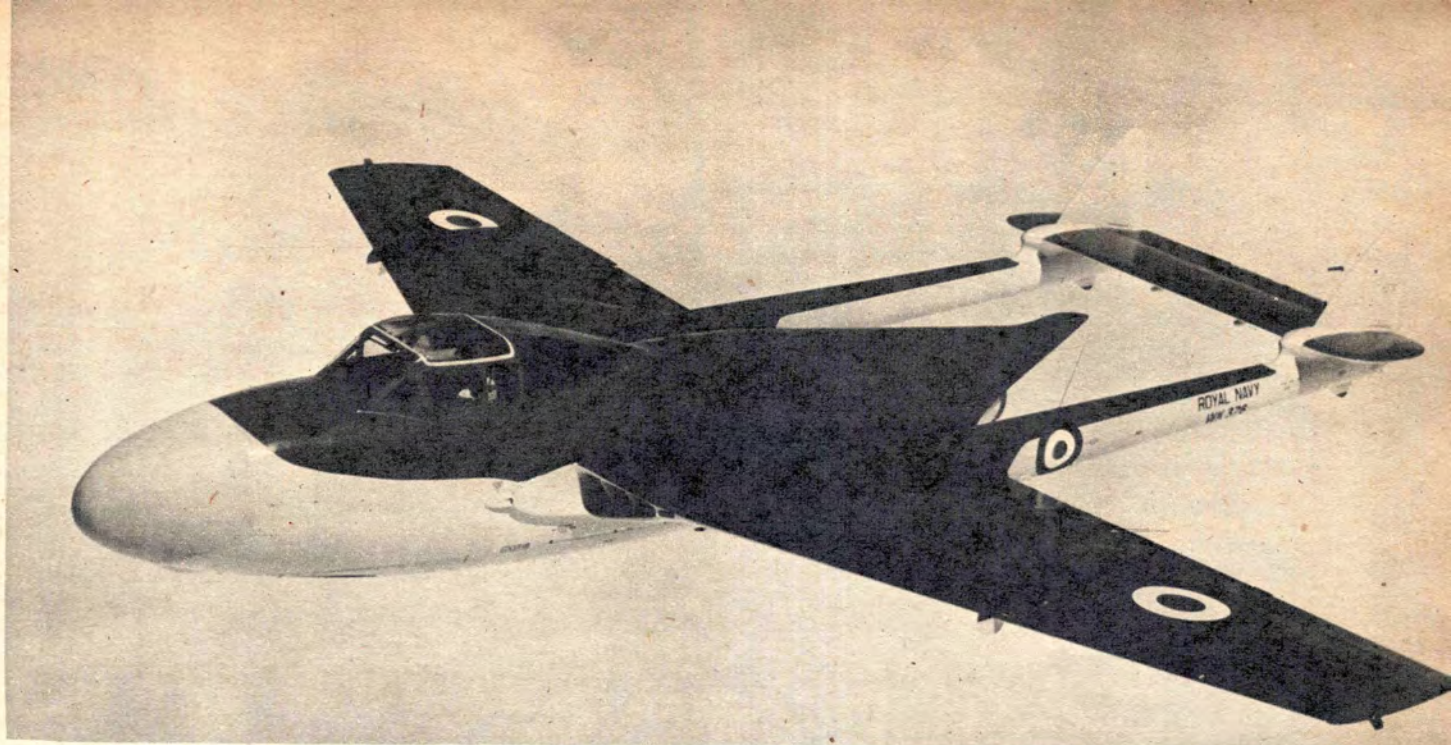


## FRIEND OR FOE?

GRUMMAN AF-2S GUARDIAN







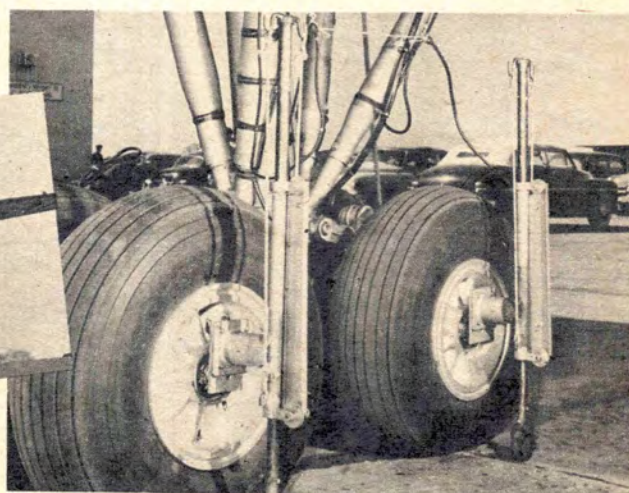
De Havilland Sea Venom all-weather naval fighter for carrier operation has 5,000 lb. thrust Ghost jet engine. Deck arrester gear fits

in half-fin at fuselage end above jet pipe; wings fold hydraulically. Pilot and radar operator/observer are side-by-side; extensive radar.

## DEVELOPMENT



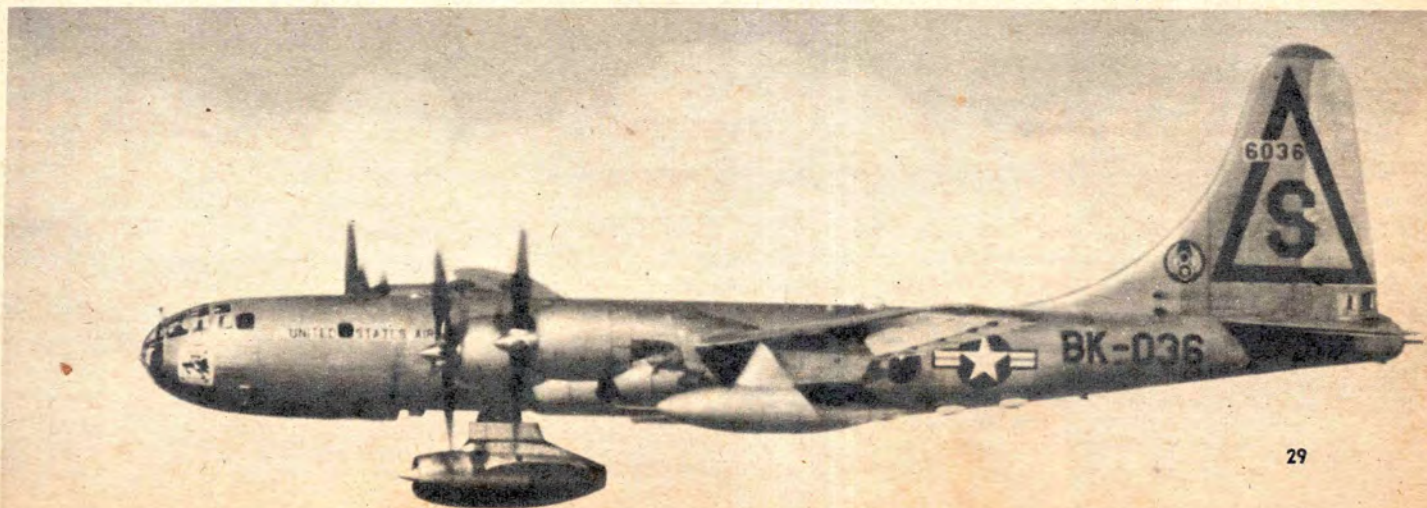
## HIGHLIGHTS



Fairchild is testing this tandem-type landing gear for Air Force on C-119 Packets to provide wider landing "footprint" for greater dispersion of weight on unprepared fields with rough/soft surface.

Pratt & Whitney's new J-57 axial-flow Turbo-Wasp turbojet engine, "much more powerful" than P&W's 6,250 lb. thrust J-48, is lowered

from this B-50's bomb bay for in-flight tests. Developed for the USAF, J-57 will power important new military planes still secret.

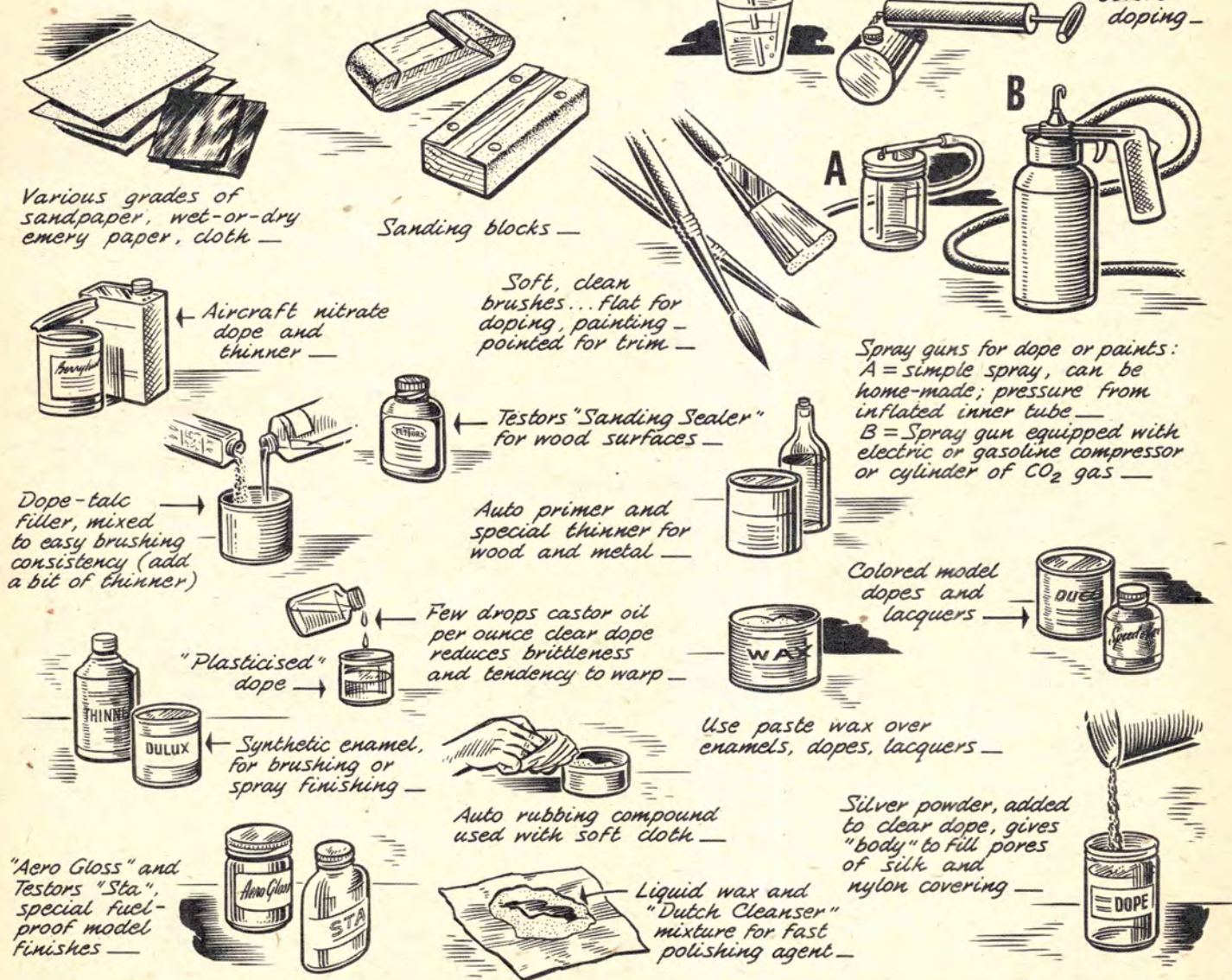




# AIR-MODEL MANUAL

## ... finishing your model

### TOOLS AND MATERIALS



■ Model finishing begins with preparation of the surface—smoothing, filling—for the final protective and/or coloring coats to follow. Wood filling, after initial smoothing, serves to fill depressions, grain pores, and seals the wood against absorbing other materials to be applied.

Application of finish materials is by brush or preferably by spray. Once having sprayed a finish, few modelers revert back to brushing. Good finishing can be done by brush, however. Invest in good brushes; keep them clean and soft. Thin your paint for brushing, using long, even strokes. Avoid finishing

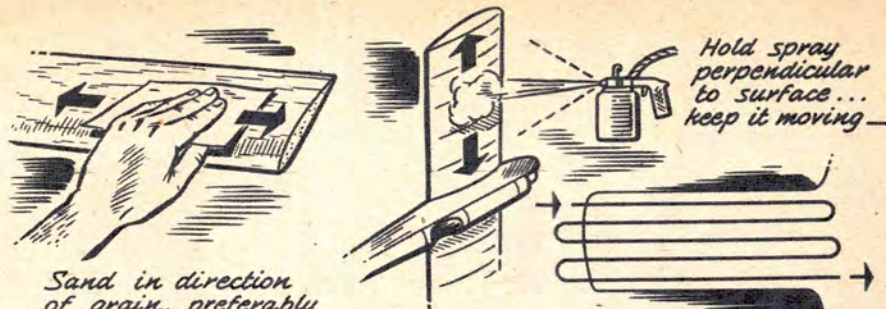
in damp, humid weather, which makes dope "blush."

Remember that nitrocellulose materials (dopes, lacquers) cannot be applied over enamels, varnishes, shellacs, though enamels can be applied over nitrocellulose.

Advent of glow-fuels has made model finishing complex. But specially developed model finishes such as "Aero Gloss" and Testors "Sta" can withstand dissolving effects of glow-fuel though often require use of special thinners and primers. Some finishes are merely hot fuel resistant. "Fuel proofer," clear substance to protect colored dopes from hot fuels, is



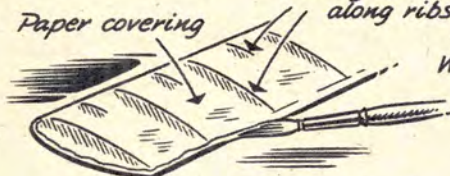
This informative material offers adjusting, flying tips and model improvements especially for the novice flyer. Tell us what other subjects you would like covered.



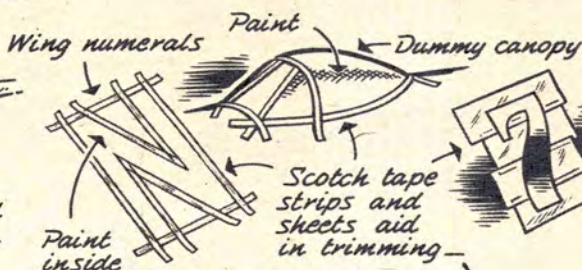
Sand in direction of grain, preferably with block for even pressure —

Spraying pattern assures uniform application of finish —

Sand carefully to prevent cutting covering along ribs —

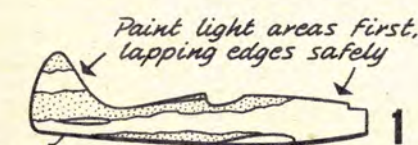


Color-dope exposed edges to match covering material for improved appearance —

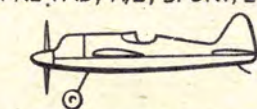


Decal sheet "Trim Film" simplifies decorating —

## PAINTING SEQUENCE

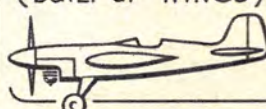


WOODEN CONTROL-LINE, PRE-FAB, A/z, SPORT, ETC.



Minimum = A, F, H  
Optional = B, C, F, G, H, I

STUNT MODEL (BUILT-UP WINGS)

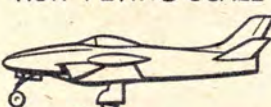


Minimum = A, D, E, H  
Optional = F, G, I, J

FREEFLIGHT (BUILT-UP)



NON-FLYING SCALE



Minimum = A, F, I  
Optional = B, C, G, J

FLYING-SCALE



Minimum = A, D, E, H, I  
Optional = B, C, F, G

SPEED, TEAM R.



Minimum = A, B, C, H  
Optional = F, G, I, J

## Steps in Finishing

SANDING



GRAIN-FILLING



SMOOTHING FILLER



WATER SPRAYING



DOPING



COLOR COATS



POLISHING



FUEL-PROOFING



DECORATING



WAXING



practical, needs only be applied around nose of model but makes repairing difficult where recementing and doping are needed. Ideal for free flight where weight is important factor.

Superior finishes, after thorough smoothing and filling of surfaces, are had by application of numerous thinned coats, first ones with light sanding between, later ones with polishing between coats. Polishing agent must be cleaned away before next coat is applied. Final buffing and waxing assure sheen.

Speed jobs, team racers, flying scale models and similar types can be finished successfully in synthetic

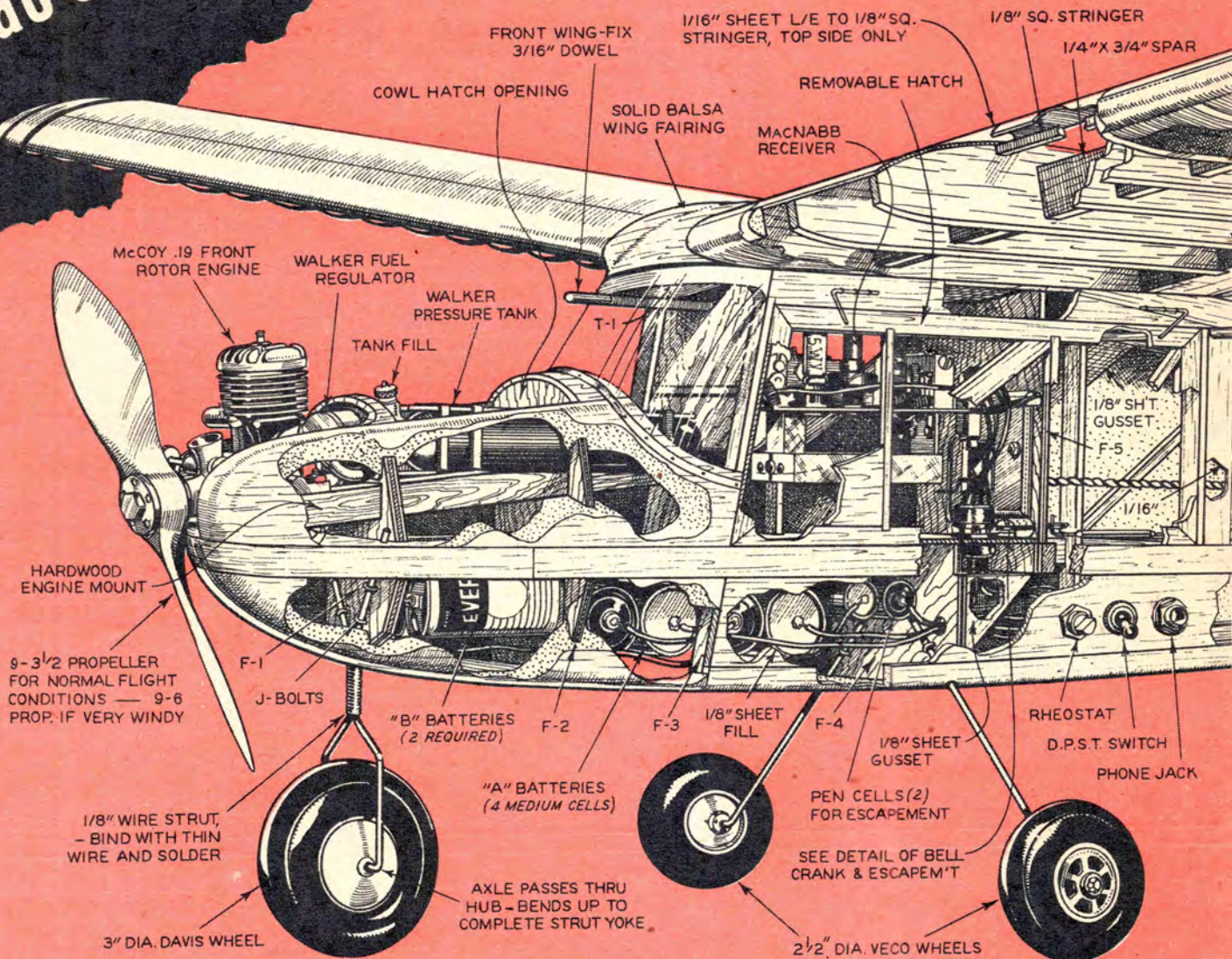
enamels (auto finishes) where extra weight can be tolerated. This can be brushed or sprayed over any type filler; should be "aged" several weeks for best results in polishing to satin finish. Auto cleaner containing rubbing compound works fine here. Synthetic enamels, particularly after "aging", resist hot fuels; further protection can be had by heavy waxing.

Any finish, particularly a slow drying one, needs dust-free atmosphere for good results, though small imperfections from dust particles can be polished out if finish is thick enough—hence suggestion of several thinned coats which also dry faster than thicker ones.



# Mac's ROBOT

All the fun and satisfaction of radio control flying is yours with this proven design; Citizen-Ship transmitter-receiver operates on license-free band, so no "ham" ticket is needed.



■ This model is the third in a series. By FRANCIS McELWEE good landings. Also the tricycle gear helps here and saves many props. Here we trace the design and flying rather than detailing the construction, which is standard. Four of these Robots were built, three using the 50-54 mc. equipment and #4 using the MacNabb "Citizen-Ship" radio.

The original design, the Radart, was exactly the same size although slightly heavier and used a .29 for power.

The .29 engine, however, had too much power and had to be slowed down and inefficient propeller used. Many times the engine would lean out in the air, causing a high-angle climb which makes control under power, especially in a wind, extremely difficult. Another feature was built-in downthrust, and in the glide the fuselage was at a steep angle, making landings rough and helping break many props.

In the Robot, the same thrust, wing and tail incidence are used, but all the downthrust is in the engine itself, with the wing but slightly positive, so the plane glides with a slight nose-high attitude, making for

The weight was kept to four pounds and powered by a front rotary McCoy .19.

The Walker pressure tank and regulator works beautifully, and runs up to twelve minutes have been made with the .19. The McCoy will hold any needle valve setting throughout the flight, regardless of how rich it is sent off. Starting reliability with a minimum of flips makes flying more enjoyable and gives more time to spend on the radio end.

The model has beautiful straight flying characteristics, yet will turn very readily with the rudder. No side thrust or trim tab setting was used, and turns both right and left are easily made—although the "rights" tend to be more pronounced. If rudder trim is needed for straight flight, use the radio rudder and offset it in the turn needed. The turns will be fairly equal in both directions as compared to using a trim tab.

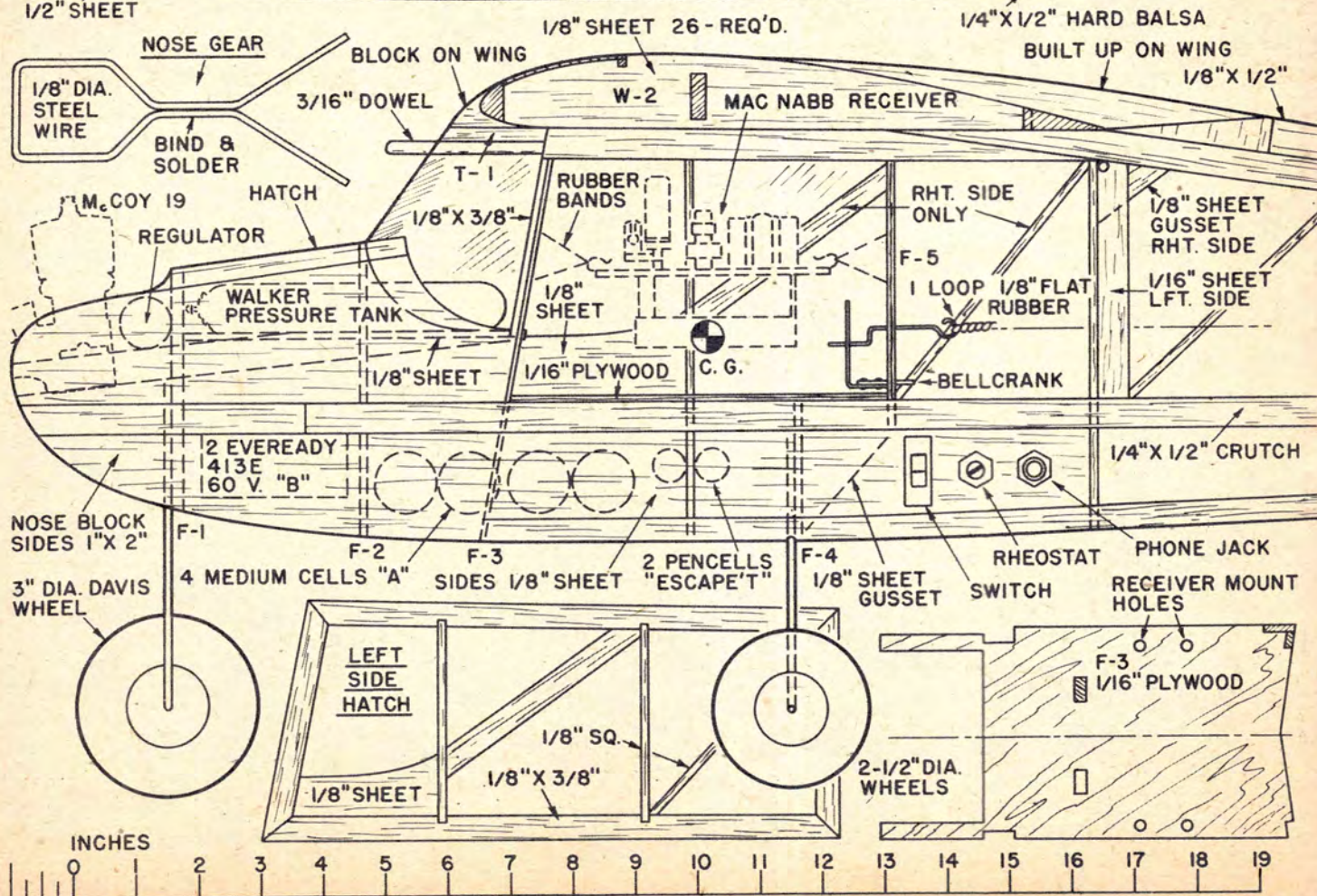
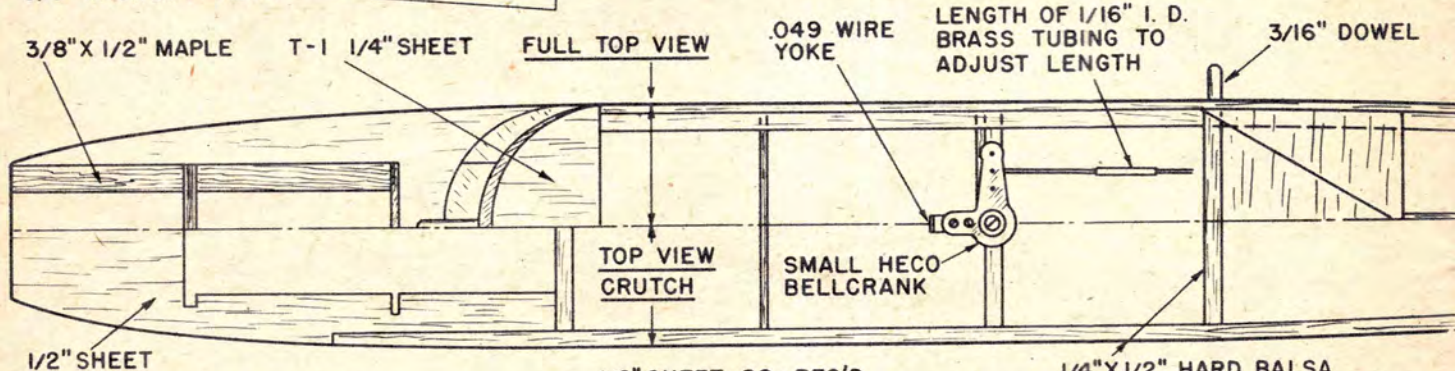
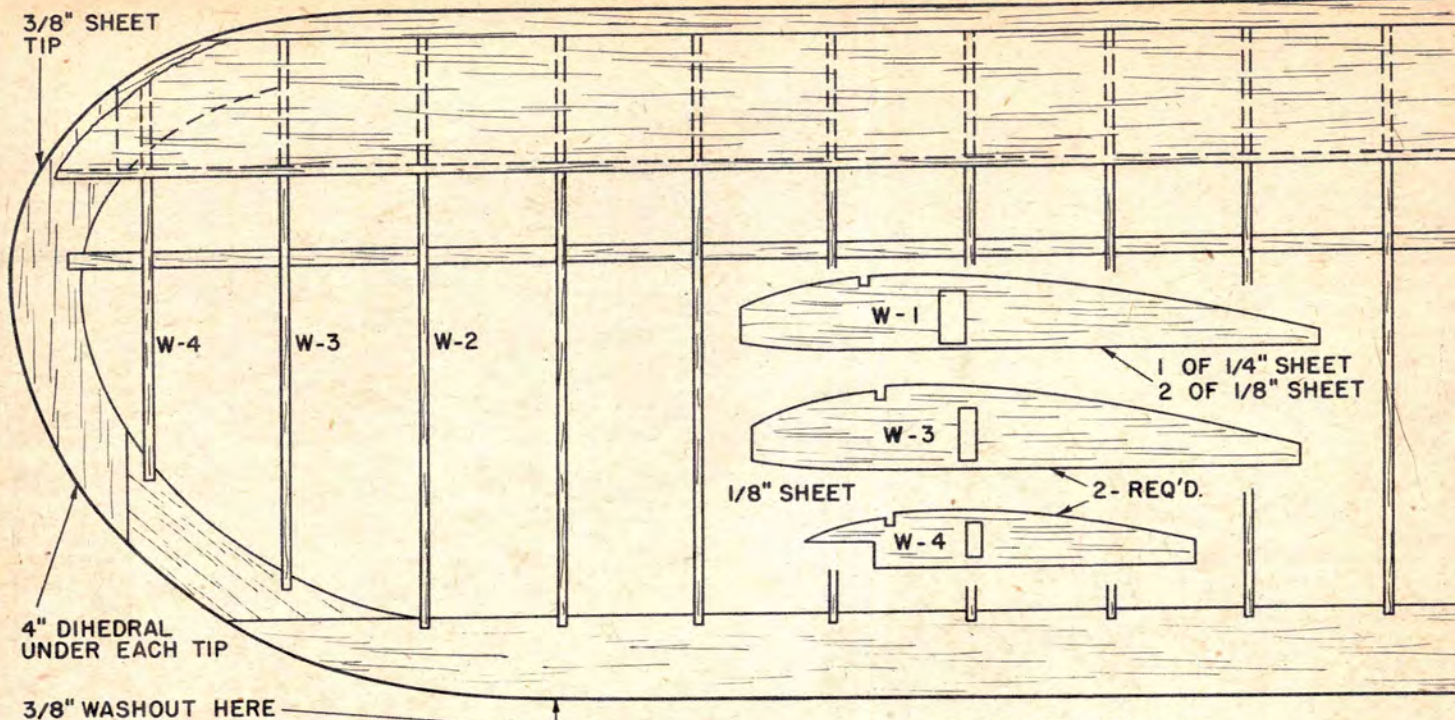
The escapement rubber is (Continued on page 36)



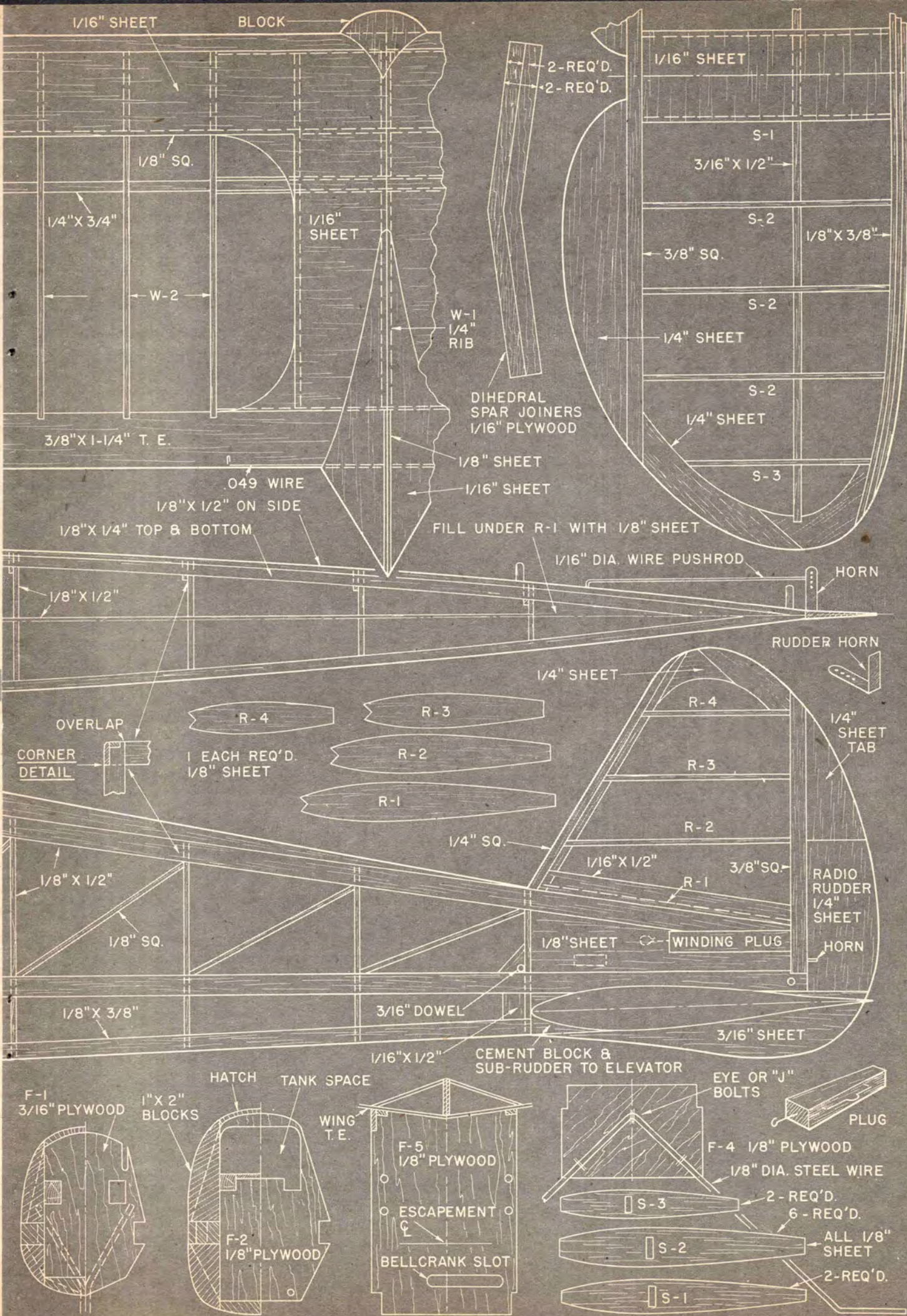




1/2" X 5/8" L. E.









wound by pulling out a small winding block on the side of the fuselage at the extreme rear end.

The construction of the wing and tail is standard, but the fuselage is slightly different. The crutch is made first, omitting the nose section. Then formers 3 and 4 are put on and all the other stations are made up right on the crutch. The escapement and rear landing gear should be first mounted on former 4. The longerons are made by first gluing the upper and lower  $\frac{1}{8}$ " x  $\frac{1}{4}$ "s in place, then the side  $\frac{1}{8}$ " x  $\frac{1}{2}$ " and  $\frac{1}{8}$ " x  $\frac{3}{8}$ "s. These are well rounded later.

All the nose formers are cut out and then the nose wheel assembled on #1. The  $\frac{1}{2}$ " sheet crutch and formers are assembled and the whole assembly slips into the front of the crutch. Motor mounts are glued in, first securing the nuts for the engine. Then the side panels of 1" x 2" balsa are notched with a jeweler's saw for the formers and glued into place. The whole nose assembly is interlocked and very strong. Allow plenty of time for drying, then carve to shape.

Any commercial set may be used; however, to mount with two bolts usually a new base must be made. The one in the ship is 2" x 3" with the mounting bolts  $2\frac{1}{2}$ " between centers. Any one of the receivers sold by Control Research, D. E. Aerotrol, etc., can be remounted and used with good success. The set lies on sponge rubber, the two bolts loosely hold it in place.

The "Citizen Ship" radio is suspended on rubber bands through the holes shown on the formers.

The commercial bellcrank has been used and works perfectly. However, any system may be used to produce the rudder movement. The writer likes to keep the escapement forward and use mechanical action back to the rudder.

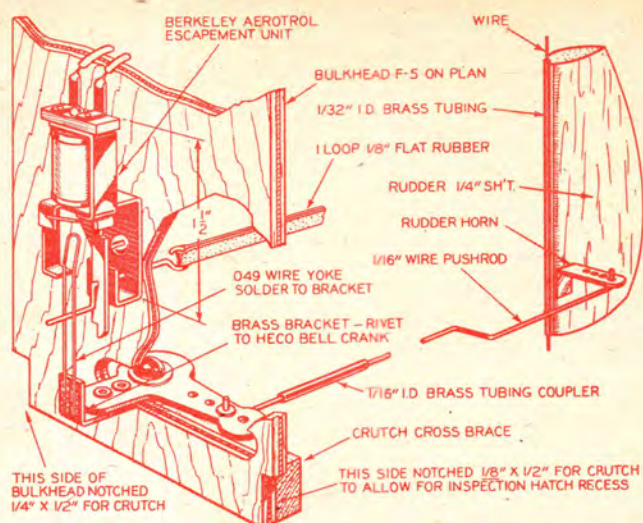
With the removal of the wing, side and bottom hatch, all wiring may be inspected and repairs made. The Robot is covered with Nyon that was dyed first. We recommend Nylon for all radio ships.

On completion of the ship, the first step is to make sure the escapement operates perfectly. If not, work on it until it does. Try it with engine running also, to check for vibration troubles and eliminate them before going out to the field.

Set up your transmitter in the field, set the plane up as for flight and do a distance check. Several hundred yards should show up any misalignment of the sets. With the "Citizen Ship" radio, there'll be little tinkering to do, but watch the voltage of the "A" batteries carefully.

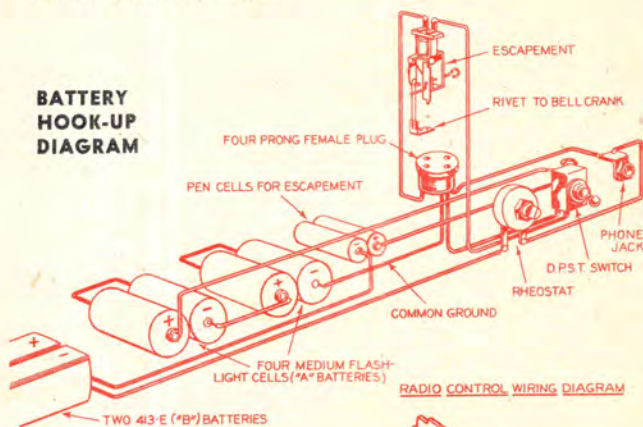
With the wing and tail set as shown, the glide should be fast and flat. (Continued on page 61)

Here is the new Robot (#4) with Mac's original Radart (AT, May 1949). Latter is still flying testing experimental equipment. Use of tricycle landing gear protects prop and makes landings easier. Robot is considered most fool-proof r-c design to date; rugged.

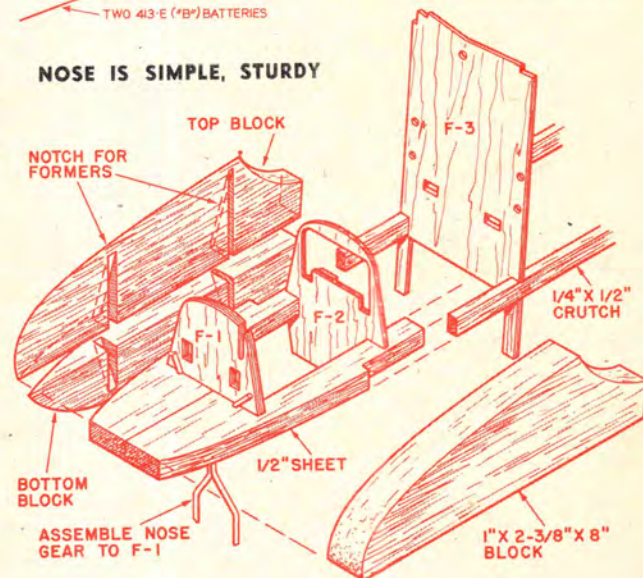


#### ESCAPEMENT DETAILS

#### BATTERY HOOK-UP DIAGRAM



#### NOSE IS SIMPLE, STURDY





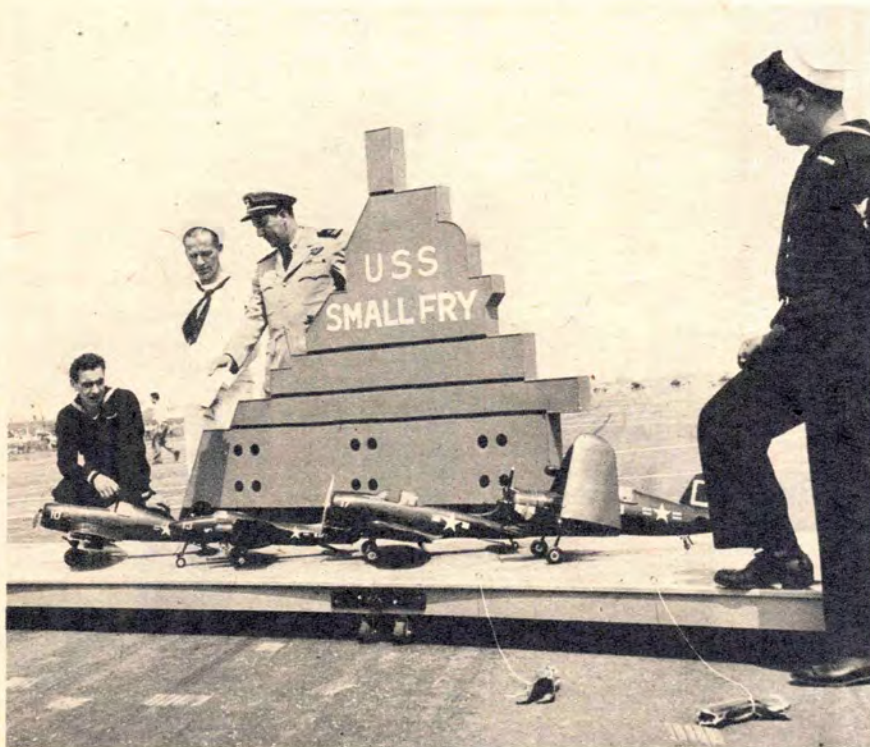
Mirror, Mirror . . . .

## Fair-est One of All

World's biggest one-day contest  
is New York *Mirror's* sixth Model  
Flying Fair attended by 250,000



Early morning aerial photo of control line section of Mirror meet at Grumman Field, Bethpage; spectators few at this hour. Free flight area began at bottom of picture.



Among entries in Navy carrier event were these fine models including a Corsair featuring folding wings by George Adams of Philadelphia. Winner was S. Calhoun Smith flying AD-2 Skyraider presented in June '51 "AT". Lt. John Burton, USN, ran event. Structure folds.

■ With a registration of 1,248 and a flying entry list held down to 1,000, the New York *Daily Mirror* ran off its sixth Model Flying Fair and air show at Grumman Field, Bethpage, L. I. June 3 before one of the largest gatherings ever at an air affair.

For the modelers the meet began at 6:10 a.m. and ran until 3 p.m. when competition in 20 events ended. After a full-scale airshow and automobile dare-devil driving demonstration, the model awards, totaling \$10,000 and ranging from TV sets and aluminum canoes to model kits, trophies and home work-shop equipment, were presented.

The youngest contestant was 5-year-old Donald Shulman of Linden, N. J., son of the famed designer-flyer Leon Shulman. Only five feminine flyers participated; several of these were members of the 35-"man" team from the Montreal Model Flyers. Charles Bothner, 22, Rutherford, N. J., established a new open class jet speed mark of 150 mph plus. From the spectators' standpoint the most interesting events were beauty (all models had to fly) and the Navy carrier event.



PAA Capt. Charles Blair, first to cross North Pole in single-engine plane, was onlooker.

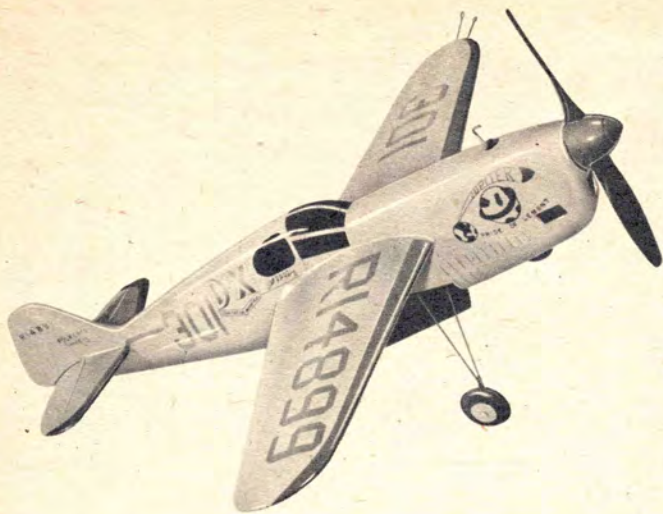


Jet-powered model Panther won beauty 4th place for Frank Lashek, Sea Girt, N.J. Dyna-Jet job has made many successful flights; is fairly close to scale. All entries had to qualify in air.









# Folkerts Racer

**One of the famous speed champs reappears as a slick flying scale model—and with minor revisions you can use the "Jupiter" in official team races**

■ The 1937 Thompson Trophy Race was one of the most spectacular contests in closed-course air racing. At the starting signal Steve Wittman took the lead in his *Bonzo* and at the halfway mark was ten miles ahead of Col. Roscoe Turner flying the famous Laird *Meteor*. Third and fourth positions were held by Earl Ortman piloting a powerful *Kieth Rider* and Rudy Kling in his tiny *Jupiter*. Then a bird flew into Wittman's propeller forcing him to relinquish the lead to Turner.

The Colonel thought he cut the next pylon short and swung back to round it again. This put Ortman and Kling first and second screaming down the home

stretch! Kling, flying much higher, put his Clayton Folkerts design into a dive, gaining additional speed to cross the finish line just one half second ahead of Ortman! Kling won by a half plane length, one of the closest victories in air race history.

The victorious Menasco air-cooled, in-line, inverted, 250 hp engine powered Folkerts averaged 256.91 mph.

Although our model with its 90 square inches of projected wing area falls short of the team racing rules minimum area requirements by 35 square inches, we recommend a semi-scale version for those modelers addicted to team racing. An enlarged wing outline is illustrated. Use the same type wing structure and a transparent bubble canopy.

Powered by a Dooling 29, our model attained a speed of 97 mph, and it is only fair to state that our engine was not completely broken in! If you are after a model that will provide many hours of carefree flying as well as have a snappy appearance, you can install engines as small as .099 in the nose. It works swell!

The basic fuselage sides are the first items to feel the sharp edge of your razor blade. These are followed by the bulkheads. Be sure to cut out slots for the wing before beginning assembly. Bevel the rear of the fuselage sides as the top view illustrates and cement the rear together, meanwhile installing bulkhead "F." When thoroughly dry, install the remaining bulkheads, being liberal with the cement. Either beam or bulkhead type engine mounts can be used. The mounts must be securely glued to the plane and filleted generously. We used Weldwood.

Bend the wire landing gear struts, bind the joints with fine soft wire and solder well. Now wrap the landing gear assembly to the hardwood strut supports with crinoline or thread and cement thoroughly. The supports are cemented securely to the fuselage sides, again using liberal quantities of cement.

Cement the 1/4" sheet fuselage bottom in place. Notice that the grain runs spanwise. The fuselage top is carved from a soft balsa block. This is cut roughly to shape around the bulkheads and spot-cemented to the fuselage. Repeat this procedure for the nose pieces. Now carve the fuselage to final shape, consulting the sections, and sand well.

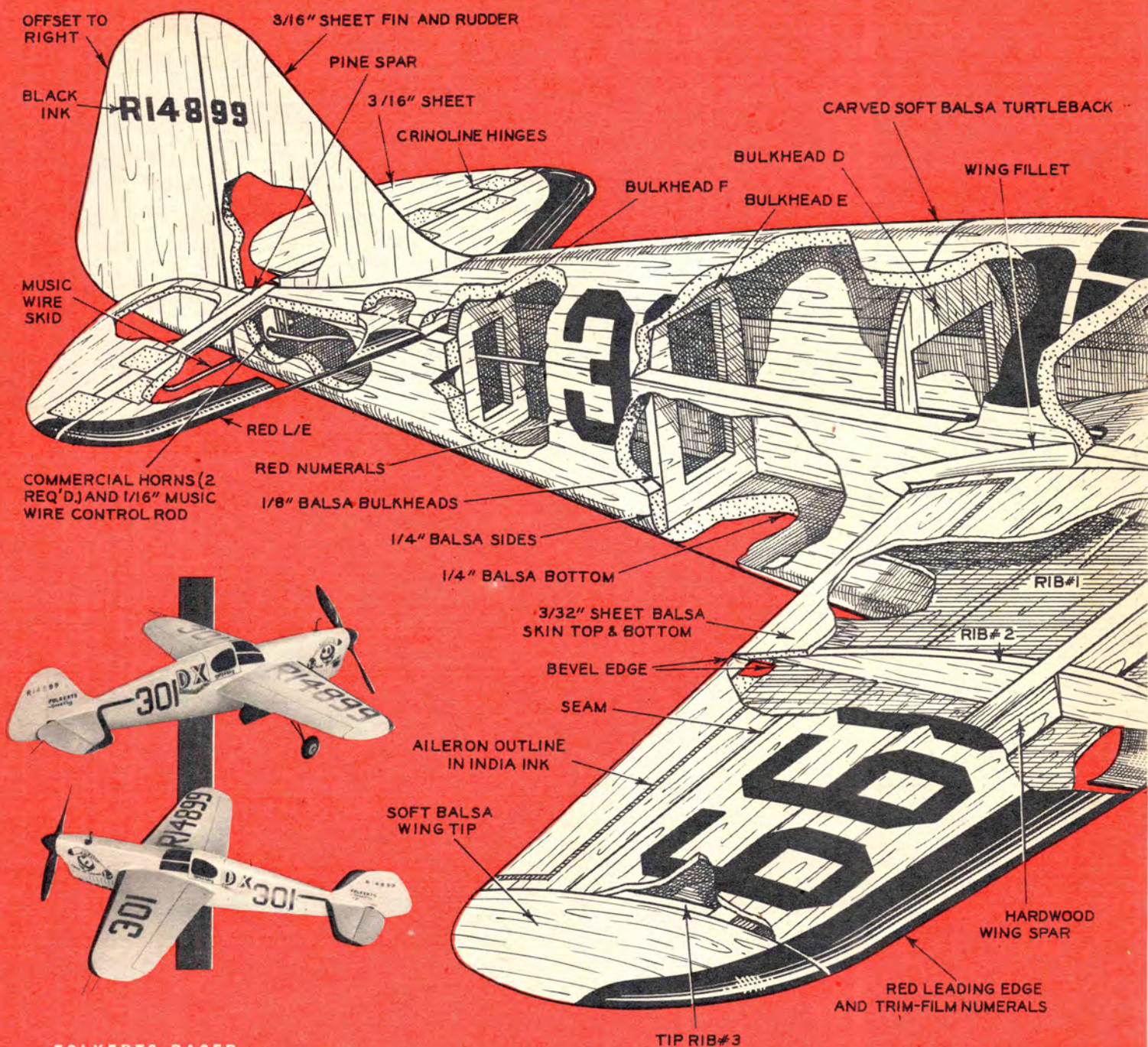
The cockpit enclosure is carved from balsa, but it can be plastic or celluloid as some builders prefer.

Carefully remove the fuselage top and nose with a sharp razor blade. Cut the empennage from 3/16" sheet and shape to a streamline section. Attach the control horns in place and hinge the elevators to the stabilizer. The latter is cut in one piece from tip to tip. It will be noted that we adhered to exact scale in the elevator hinge line, although it required the

By **WALTER A. MUSCIANO**







FOLKERTS RACER

use of two control horns. This double horn system worked quite well and is recommended for the "scale die-hards." Those who are less meticulous can use the alternate straight hinge line shown on the plan.

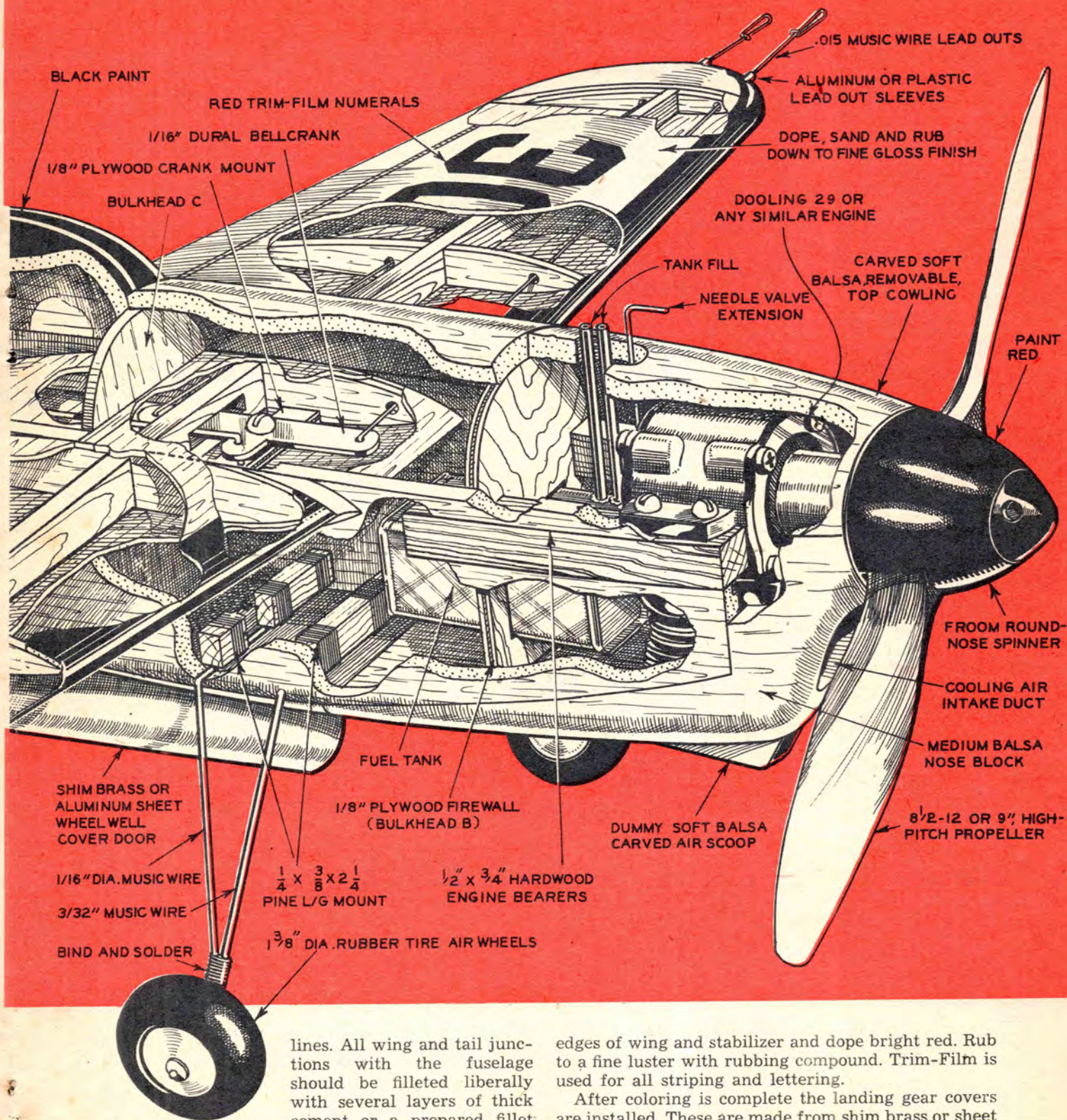
Our wing is extremely strong for its weight. It is built in one piece from tip to tip; no dihedral is required. Start construction by cutting the hardwood (pine will do) spar to shape. Cut a slot for bellcrank movement. Cement the ribs to it. Cut the two lower covering panels from 3/32" sheet balsa. These panels run from the model's center line to the tip rib and must be cemented together along the edge in order to form a wide sheet. Seams are shown. Cement these panels to the bottom of the ribs, working on the flat portion first and, when dry, cement the lower covering panel to the curved portion of the lower camber, holding the covering to the ribs with straight pins until the cement has dried. Bevel the leading and trailing edges of the lower covering to follow the con-

tour of the wing ribs' upper camber. Install controls.

Attach lead-out lines to bellcrank. Bolt the bellcrank to the hardwood mount; cement bellcrank mount to the bottom covering and spar. Attach the wire control rod to the bellcrank and then cover the top of the wing with sheet balsa, butt-jointed along the seams shown. Leave a slot for adequate control rod movement. Cement the soft balsa tips in place and, when dry, sand the entire wing until smooth.

The completed wing assembly set at zero deg. incidence is now attached to the fuselage—use plenty of cement. Connect the control rod to the horns. We feel it is important to solder the washers to the rear end of the control rod as illustrated in order to prevent misoperation due to binding or disengaging. Cement the stabilizer to the fuselage at this time. Test the control system. Cement the fuselage top permanently in place and add the fin and rudder. Notice the rudder is offset in order to maintain tension on the flight





lines. All wing and tail junctions with the fuselage should be filleted liberally with several layers of thick cement or a prepared fillet compound. Sand the entire

model lightly.

Using Testor's Sanding Sealer, apply six heavy coats to entire model. Sand with 3/0 sandpaper after each coat is thoroughly dry, up to fourth coat. Last two coats are sanded with very fine wet sandpaper. Before we applied paint we brushed on two thin coats of Aristo-Craft white wood filler. This is sanded with wet fine sandpaper until it is virtually all removed except for the low spots. Now, wipe the model clean with a soft clean cloth and begin painting.

The entire plane is lemon yellow with red trim. Four coats of Testor's yellow-colored dope should produce a fine finish. When dry, mask off leading

edges of wing and stabilizer and dope bright red. Rub to a fine luster with rubbing compound. Trim-Film is used for all striping and lettering.

After coloring is complete the landing gear covers are installed. These are made from shim brass or sheet aluminum. Cut away engine hatch and fuel proof with Tuff, the entire plane as well as cowl interior, twice. Install engine and replace cowl by using large dress snaps or droplets of cement.

Models powered by the smaller engines can be flown on .008" steel lines from twenty-five to forty feet long; however, the more powerful racing .29 cu. in. and up engines should be operated on .012" steel lines from forty to sixty feet long. Make certain the model balances at the point indicated on the plans. It is suggested that a smooth flying site be used, as the wheels are rather small and may snag in grassy sites. One word of caution to the less experienced flyer is not to try and zoom the model (Continued on page 65)



# TESTORS...THE ON

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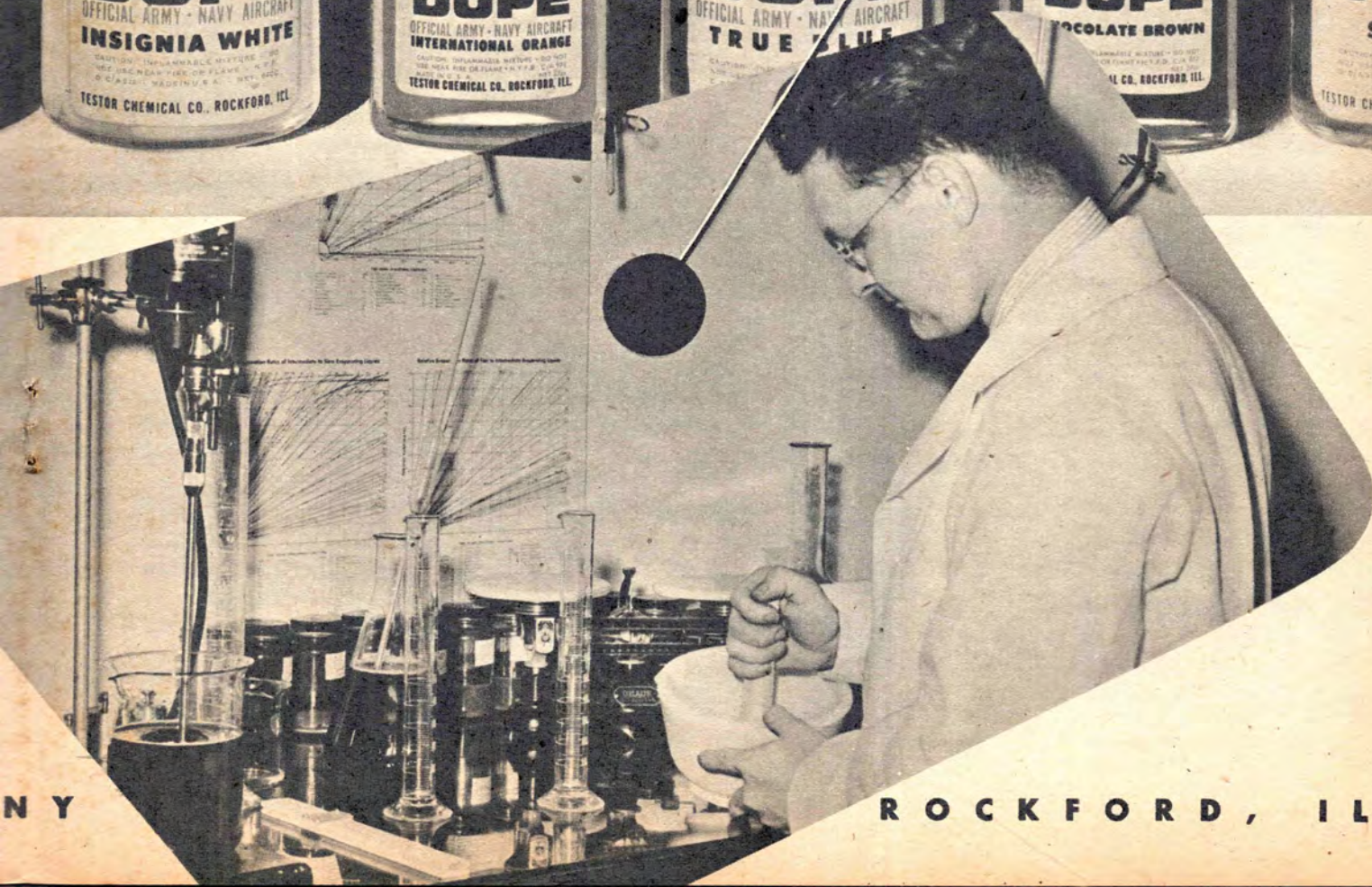
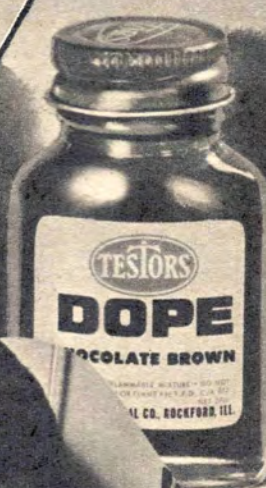
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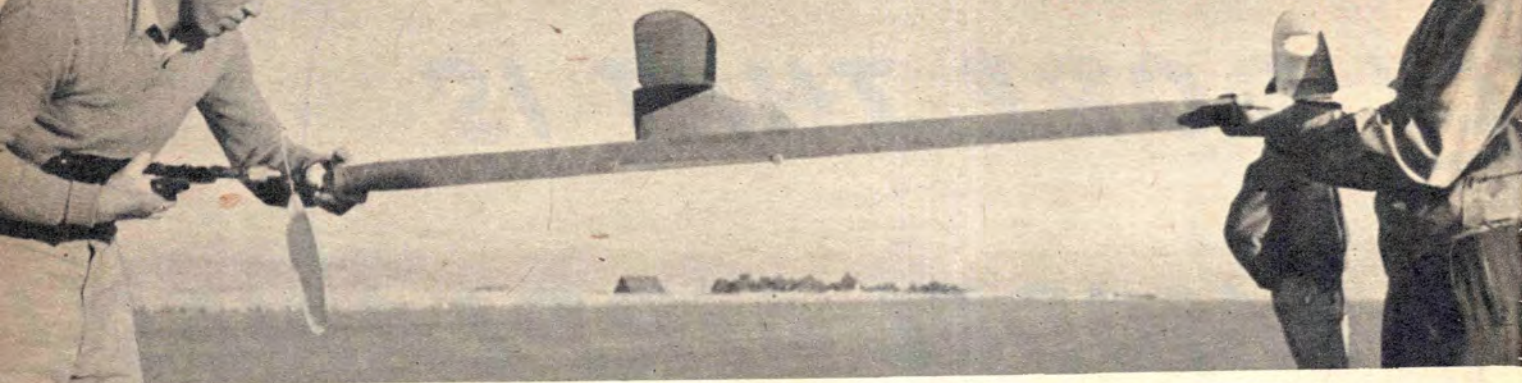


NEW YORK

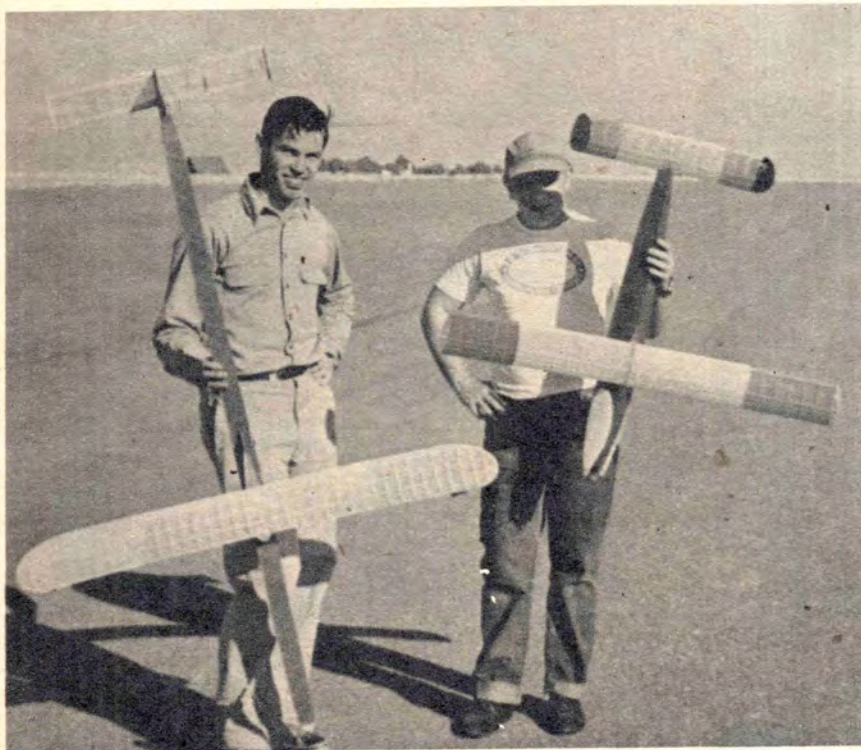
ROCKFORD, ILL.



# the E-X-T-E-N-S-I-O-N-I-S-T-S



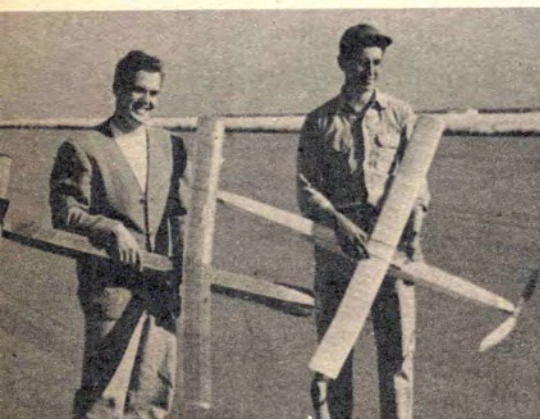
Mother, mother, mother—what a lotta, lotta rubber! Henry Cole winds at Tracy, Calif., Wakefield semi-finals. Joe Bilgri holds downstream.



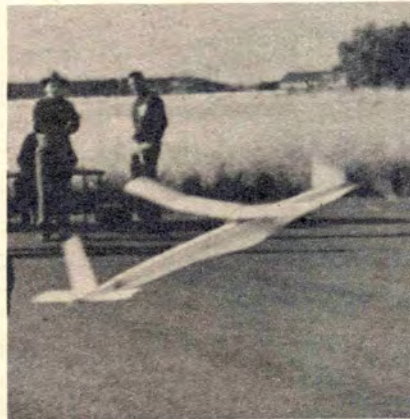
## When Western Wakefield winders waged war, winning whiz wags wooed wind & went

■ When good rubber men got together out in California to fight for the honor of two places on the American Wakefield team, a new breed of models made its appearance. The old and new styles in Lord Wakefield event entries is apparent from the photo of Henry Cole (left) and Bill Tharp. Cole, with his long model, and Tharp with a conventional "shortie" point up the tremendous difference in American-type rubber models and those considered a "must" by many designers for competition in the Finland finals.

This trend in still-air flying craft was first predicted by Frank Ehling in the March '51 "AT": "If everyone tries to get maximum motor run, all fuselages will have to be long. If one wants to get maximum wing area, he'll have to use a small stab." Although the prediction was made months in advance of the Tracy trials, Frank was 100% right.



Joe Foster and Manuel Andrade, two West Coast members of the U.S. Wakefield team by virtue of placing 2nd & 1st respectively.



Andrade's Wakefield gets off on its second official flight. For additional details see Western Roundup column in this issue.

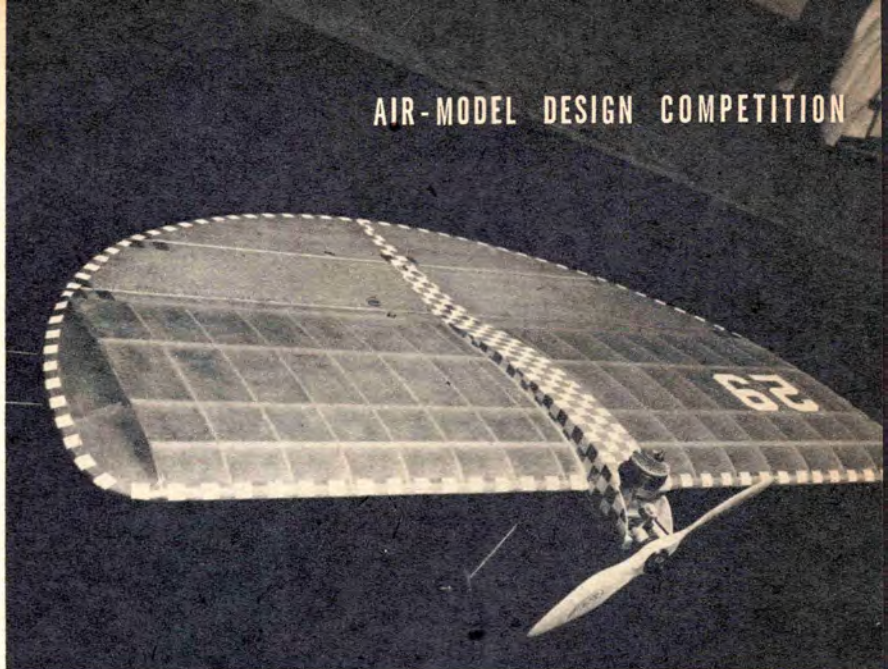


Like a winged arrow shot into the air, Hank Cole's pencil bomber makes a nice take-off. Design was duplicated by other entrants.



# acrobatic ACES

AT's designing doodlers come up  
with some refreshing new stunts  
including one Italian winner



Top design this month is from Egypt (Massachusetts) and can turn on a dime.

■ Early stunt models were nothing but trainers for speed flyers. Most of them required a tremendous amount of sky-room to perform loops. The wing just was not able to generate enough lift to counteract the centrifugal force encountered in smaller loops.

In time, the designers realized that a low wing loading (lots of wing area for the weight) was needed for tight and easy maneuvers. In conjunction with a low wing loading, the stabilizer moment arm was also shortened. So, many present-day designs have the stabilizer practically on the wing's back porch. Theoretically, this design evolution follows a sound aerodynamic principle.

In adhering to the ideal of low

weight and lots of wing area, what could be more natural than a flying wing plan outline? Hence the reason for selecting as outstanding the stunt design submitted by James M. Denker, Egypt, Mass.

The only additional suggestion that the committee can offer in conjunction with this design is that a dolly take-off would eliminate the weight of the landing gear.

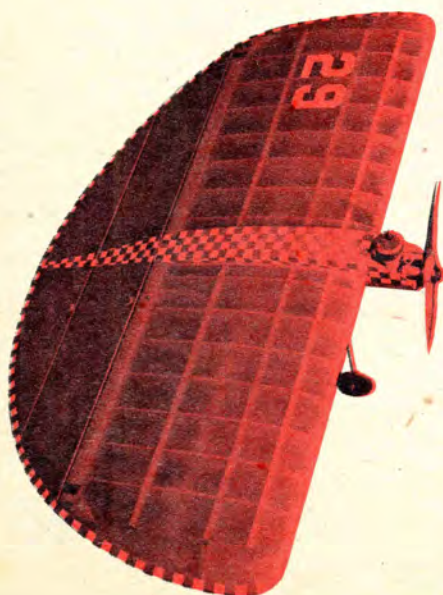
A flying wing used as a free flight design is very touchy about power or speed changes. A speed just a bit higher than the glide would mean a loop. But on control flying wings, the flyer can easily "adjust" the wing to generate the amount of lift required at any particular moment.

Normally, the wings we have seen have a single elevator or one flap. This arrangement more or less means a sharp break of surface which may contribute more than a reasonable amount of drag. Note how Mr. Denker solved this problem by an elevator-flap combination linked to produce a gradual curve like that of a true airfoil. This idea might also work out well on regular or standard stunt models. In most current cases the

elevator has to move through a large angular moment to obtain the required results.

In many ways, the flying wing stunt model is in its infancy. The very nature of using down elevator to obtain a nose down, and an up movement to obtain a loop, is an awkward way of doing business. If you look at the situation, you will see that we are forming an undercambered airfoil to develop low lift, and form a reflex trailing edge type to obtain high lift. This is just the opposite to full scale practice. However, for the moment, this is the only way we have to bring about conditions which will make the model perform the maneuvers desired.

The fact that the model seems to work well despite the awkwardness of the situation, should not keep us from trying to develop a more "economical" system. By economical we mean reduction in drag. A deeply undercambered airfoil, held at a negative angle, produces a lot of drag. And conversely, a streamlined reflex section has to be held at much higher angles of attack to obtain the same amount of lift as a streamlined section at



**ABOUT THE DESIGNS:** You are not required to build a model in this contest! All you do is submit detailed 3-view drawings of your favorite "brain-child" (plus sketches if you are artistically inclined). These drawings should not be less than 8 x 10 inches and must show dimensions. Give data on wing sections and settings, cross sections, center of gravity, weights, proposed power and the like. It's not your drafting skill that will win, but your designing ability and imagination. AT selects meritorious designs and presents them in 3-view form; payment of \$5 will be made for each one published. The top design will be built and test-flown by AT's design and research team and model will be given to the winner with all the equipment that goes with it. You have until Sept. 1, 1951, to have entries postmarked for model-helicopters utilizing any type of motive power. **SEND YOUR DESIGNS TO:** Air-Model Design, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Decision of Air Trails staff is final; because of the large number of entries received none will be returned and the editors cannot enter into correspondence concerning these.



lower angles. A reduction of drag means higher speed for the power used.

Talking about high speed, we wonder just how fast a model should fly before the speed begins to backfire. This backfiring occurs because of the centrifugal force whose value can be found by:

$$\frac{\text{Weight (pounds)} \times \text{Speed (feet/second)}^2}{32 \times \text{radius (feet) of loop}}$$

Try a couple of examples. Take any speed and size of loop you like. You will note how rapidly centrifugal force builds up with an increase in speed. And remember, the model has to develop lift equal to the centrifugal force to maintain that particular size loop. If it cannot produce enough lift, the loop will open up automatically, no matter how hard you may try to tighten it up with the control. As a matter of fact, the elevator may actually force the wing into a stalled condition in which you get sloppy response.

Talking about stalled condition brings us to the type of airfoil to use. Some builders are using very thick airfoils, as much as 25% of the chord. Thick airfoils will stall at higher angles than thinner ones, say 18%. However, thick airfoils must operate at higher speeds to obtain full benefit. At low speed they have poor stalling characteristics. An 18% section may stall at about 8 degrees, but it will do so gradually so that you can adjust your controls to suit the situation. A thicker section will be abrupt in its action. Therefore, for a novice flyer, a thinner section seems more desirable.

Since the flying wing has a light loading—which means lower speed in loops—the selection of the airfoil indicated seems sensible.

The natural balance or C.G. position is shown. Assuming a working chord of 14", this position seems to follow the general rule of having the C.G. 20% to 25% from the leading edge.

Construction of this flying wing is on the sturdy side. It should take a lot of abuse or experimental changes. Start by cutting the ribs. Note the use of 1/4" ribs at center, and how stub spars are used to make up for strength lost by cutting out the upper spars. If you plan to have regular type tank, continue the upper spars—and leave out the stubs. This will also eliminate the hinge fairing. A bit

of motor fairing will be sufficient.

Although the original design specified 1/4" plywood motor mount base, the 3/8" basswood proved more practical. Note how landing gear is held in place with straps. The balsa block fairing under the motor mount is carved to fit the type of motor you use.

The hinged fairing is made from 1/16" sheet. It should fit snugly between 1/4" ribs. It can be held down with a rubber band. Note notch. The elevator-flap combination is made from 1/4" thick balsa sheet; quarter-grained stock preferred. Two or more sheets may be cemented together to obtain the required 4 1/2" width. Dope them several times with clear dope with in-between sandings before cementing them in place with the cotton tape hinges as shown.

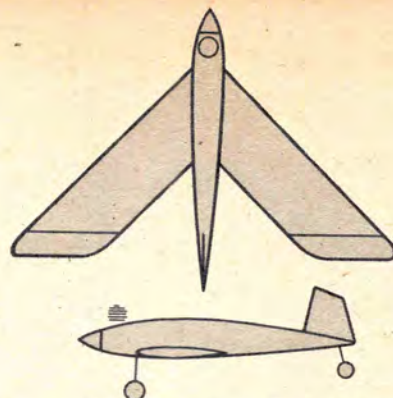
The linkage system will take a bit of time but it is worthwhile. Use the top hole (A) for initial flying, not the bottom one as shown on the plan. The fittings are designed to eliminate as much play as possible. Note how the main lever is hinged on a bolt with washer spacing to prevent wobbling. It might be advisable to assemble the linkage as a sub-assembly and then bolt it to the elevator and other points.

This design might also be a good one to work out your own idea of control motion or linkage. The elevator and flap areas are on the generous side so that many combinations can be tried without changing the areas. Don't use the bottom hole on the rear flap (as shown on the plan) until you've tested the model with the aft pushrod in top ("A") position.

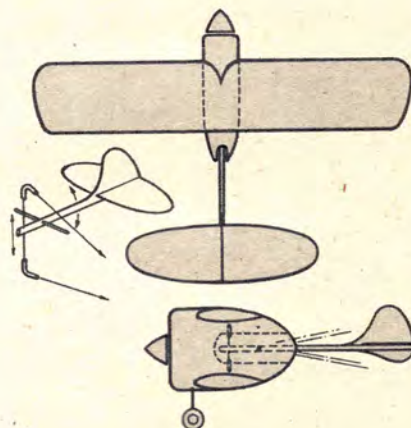
The model is finished with several coats of clear dope. No color dope was used since weight had to be held low.

In testing this model, be gentle with control. Note the large flap area. The landing gear is sturdy and will allow safe taxiing for initial try. During this stage you should have an idea if the C.G. is in the correct position. If the C.G. is far forward, you will have to use a bit of "up" control to hold the model in level flight. If the C.G. is too far back, practically no control will be required, or you may actually need a bit of "down." Of the two conditions, forward C.G. position is preferred.

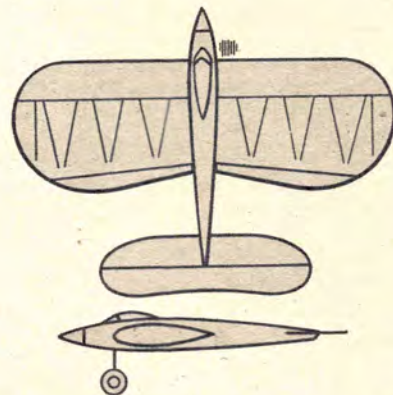
In stunting, do not try full control as you may stall the model.



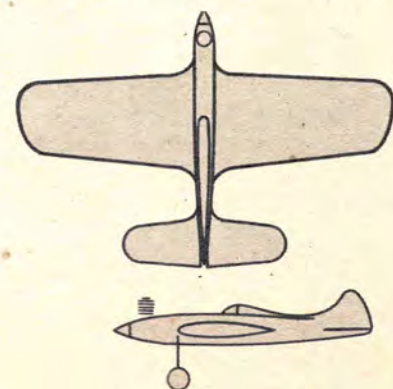
Ronald Adler, Pittsburgh: Swept-wing design with ailerons. Wires to left wing also work right wing control thru 2nd bellcrank in fuse.



A. A. Faranda, Yonkers, N.Y.: Stab fixed to boom which acts as lever operating entire stab and/or elevator. Same area both wings.

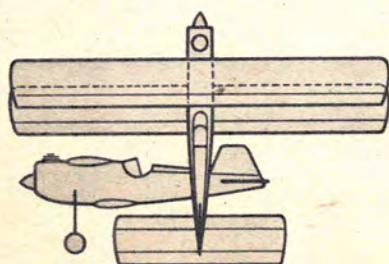
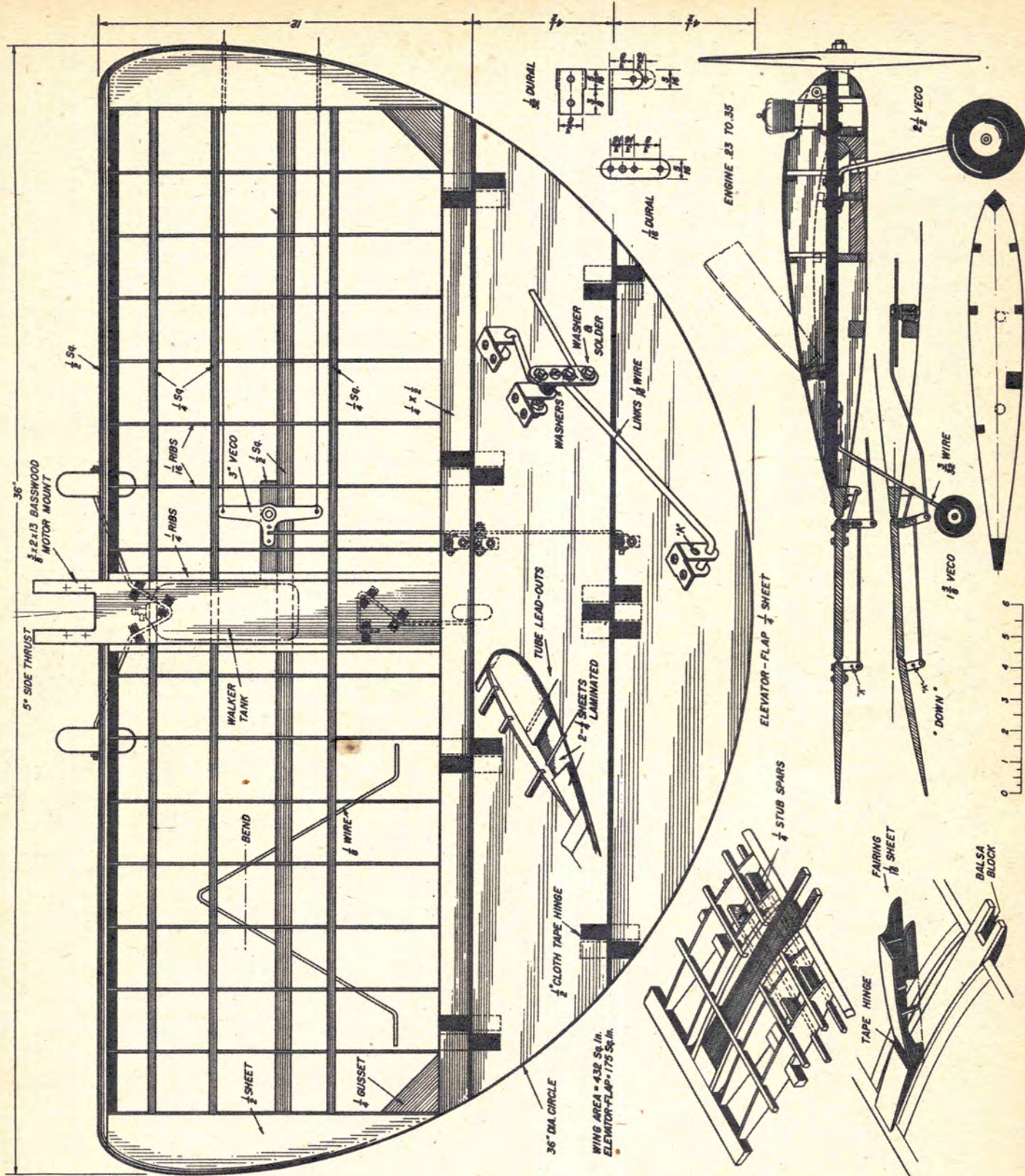


Frank Marcenaro, Genoa, Italy: Small, light 75mph job is proven stunter. Full span flaps; "D" section nose on wing; semi-geodetic.

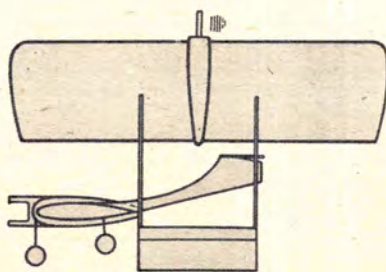


Herbert Gundlach, St. Petersburg, Fla.: Rat, symmetrical wing built in top & bottom halves, joined. Span, 36"; 26" fuse; wt., 24 oz.

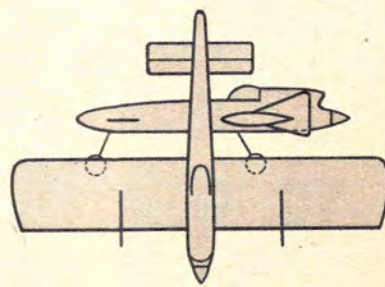




E. H. Johnstone, Jr., Lansing, Ill.: 224 sq. in. biplane has bottom wing flaps working with elevator. Top wing flaps work on counterweight.



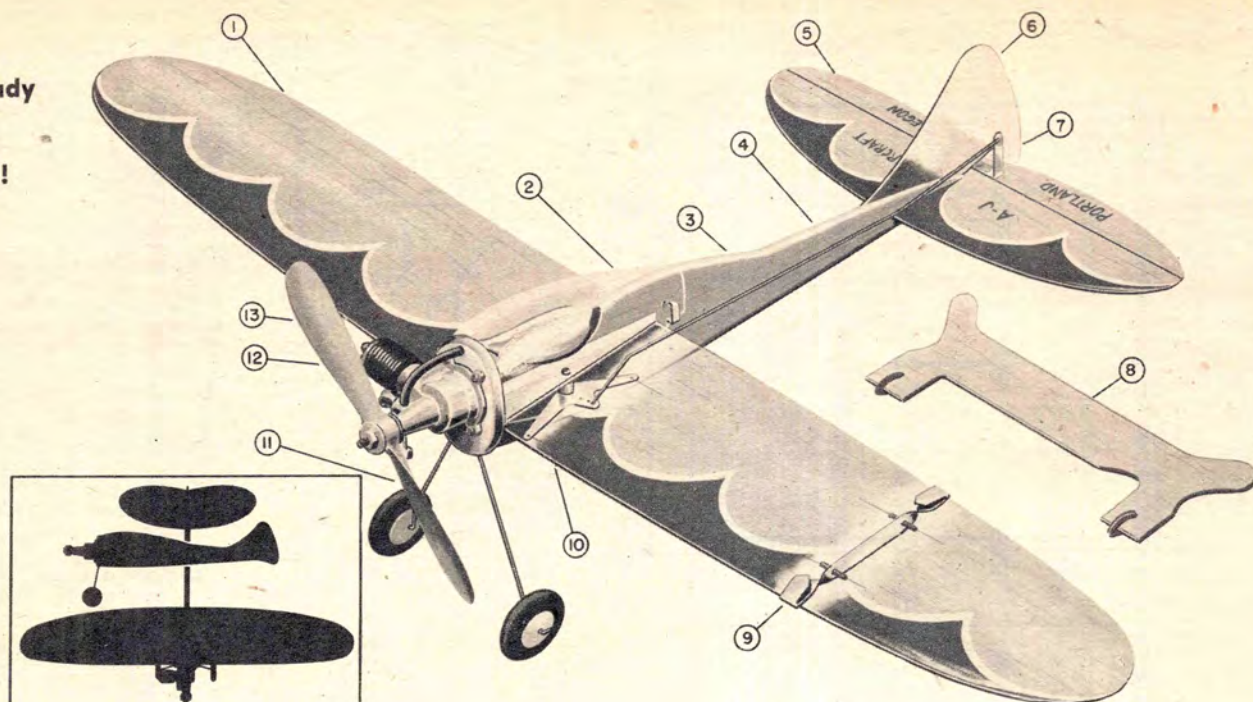
J. P. Valle, Wichita, Kan.: 10 oz./sq. ft. wing loading on this job. Booms are 5/16\"/>



Frank Hauser, Jr., NYC: Canard with C.G. half in. forward of wing. Span, 34 in.; area, 238 sq. in. "Down" on small stab raises nose.



Ready  
To  
Fly!



(1) Shaped sheet balsa wing, former airfoil; (2) formed bubble canopy; (3) formed wire pushrod; (4) shaped sheet balsa fuselage; (5) sheet balsa stab joined to elevator by fabric hinges; (6) sheet aluminum fin; (7) aluminum elevator horn; (8) plywood con-

trol handle and flying lines supplied; (9) aluminum line guide; (10) bellcrank and mount; (11) wire landing gear and wheels; (12) Baby Spitfire engine; (13) balloon tank, formed aluminum wing and engine mount. Assemble with screwdriver.



■ In the scale category we have a neat, fully prefabbed cabin monoplane, one of a series of six offered by Comet Model Hobbycraft, Inc., 129 West 29th Street, Chicago 16, Ill. Scale models by Comet are no strangers; *Super Cruiser* meets their usual standards. Others in the Comet "M-series" are Taylorcraft, Aeronca, Bonanza, Cruisair, and Ercoupe.

Though designed primarily for

free flight rubber, these scale jobs are very successful Half-A controline flyers as well. The rubber flying accessories are included in the kit.

Comet calls this the Struct-O-Speed series. All balsa parts, except the wing, are completely die-cut, of course, and colored as well. The Holl-O-Wing is cut from sheet of wood about  $\frac{1}{4}$ " thick. It comes all shaped on the upper surface; underside is hollowed out the full length of wing. After eight die-cut ribs are cemented in, a thin bottom sheet is cemented on to produce a light but strong structure.

The fuselage is assembled from full-length sheet sides held together with six formers which key into sides for insuring alignment. Balsa is also used for top and bottom covering. Reaching the front of the fuselage, we see several features of which the manufacturer is justly proud. One is a perfectly shaped plastic cowl which should be practically crashproof. Another is the spring type landing gear, made up of shaped strip of springy alloy and a piece of music wire. If your model stalls out just off the ground, this gear will completely absorb the shock.

The windshield and windows are all in one piece, which is cemented on after wing and cowl are attached. Kit includes hardwood for wing

struts instead of the more usual balsa.

The plastic propeller is of a size and shape not generally available in model shops. It is 5" long and of relatively low pitch with plenty of blade area, as needed to pull a fairly heavy model. It is suggested that a couple of tiny washers or a bead be slipped on the shaft between prop and nose button; a spot of oil should be added to assure smooth turning. If ship is to be flown with rubber power, it should be lightened by sanding as much as possible, and not doped. If these lightening precautions are not taken, it may be necessary to add a second loop of rubber to secure really good flights.

Decals are included for wing and tail numerals, Piper insignia and cabin striping.

The well-detailed plans include a three-view of finished model, an exploded view, plus numerous sketches of assembly details. One of the latter shows how to install a K&B engine for gas flying. The plastic cowl, which is fuel-proof, is retained in this conversion and cut to fit around the powerplant. Engines up to .049 have been used this way, but ideal size is around .035. A prop of 5/3 size is suggested. For gas flying, ship must be well fuel-proofed. For such use, the model should not be lightened, as is necessary with rubber.





**DESIGN:  
A-J FIREBABY**

**MADE BY:  
JIM WALKER**

**CATEGORY:  
READY-TO-FLY**

■ A ready-to-fly U-Control plane, with a little assembly of the simplest sort, is the Firebaby.

A-J Aircraft Co., Portland 12, Ore., has always been noted for attention to details in their ready-to-fly models. This has been true from the famed 10c "74" glider on up, and is especially noteworthy in the *Firebaby*. Upon opening the box, you

will find all parts firmly held in an inner packing frame. You will find the wing entirely free of warps, the hinged stab assembly just as perfect as when it left the factory, and the sheet metal parts bent only as the maker intended. For those who don't know it, the *Firebaby* is a composite wood and metal ship with a 19" span, 11½" length, and weight of 3 oz. with motor, and is intended for powerplants from .02 to .07 cu. in. We should say an engine in the .035 range would be ideal for the rank beginner.

The model—this is not a "kit," remember—comes complete with everything you need to fly, except engine and fuel. You get an adjustable prop, a balloon fuel tank and a heavily fuel-proofed fuselage. You even get a control handle and two lengths of Nylon flying line!

Assembly is essentially a screw-driver proposition, and is rapid and simple if you follow the large exploded-view drawing. Detailed mounting instructions are given for Spitfire, Cub, and Torp engines, and the firewall is punched to take any engine you could have.

The balloon tank is carried inside the plastic canopy, but details are given for mounting a metal tank, for those who prefer this style. Engines are mounted horizontally, a fact that contributes much to the

perky appearance of this little plane. As with all the A-J ships, the lines are very attractive and the coloring of the balsa parts is bright and appealing.

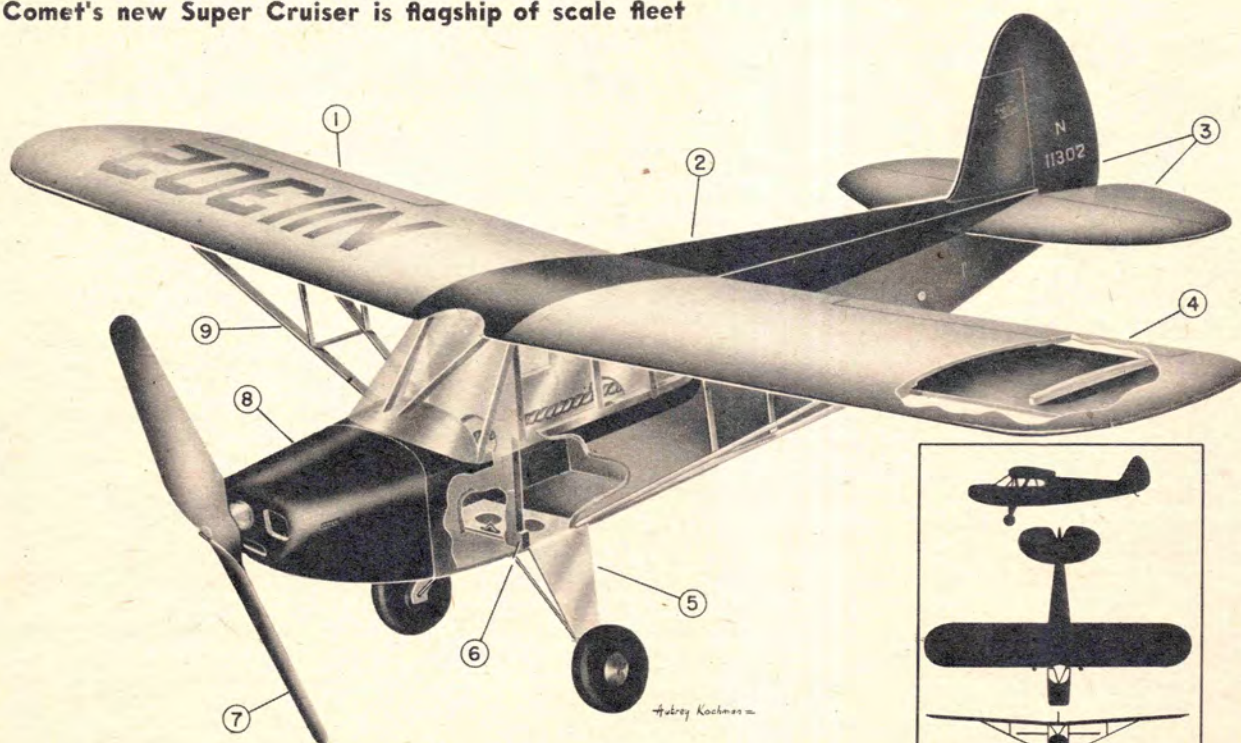
On those metal parts where it might be considered necessary, sharp edges have been completely removed. The stamped aluminum bellcrank, for example, is beautifully smooth all over and won't cut the lines.

Even on such common items as wheels, you will find real quality, for they are not the less expensive balsa or plastic jobs usually associated with ready-to-fly models, but turned aluminum with sponge-rubber tires. They will stand up under the punishment a lot of these *Firebabies* will be receiving from novice flyers.

Details and drawings for plain flying and stunts are given in the instruction sheet and on the colorful box. The pushrod is adjustable and the beginner should install it in the "training" position.

This little airplane is a painless way for those who have scoffed at controline flying to give it a try. Novices aren't the only ones who get a kick out of the *Firebaby*. We've seen hot stunt men, including Jim Walker himself, having the time of their lives "wringing out" these little ships.

## Comet's new Super Cruiser is flagship of scale fleet

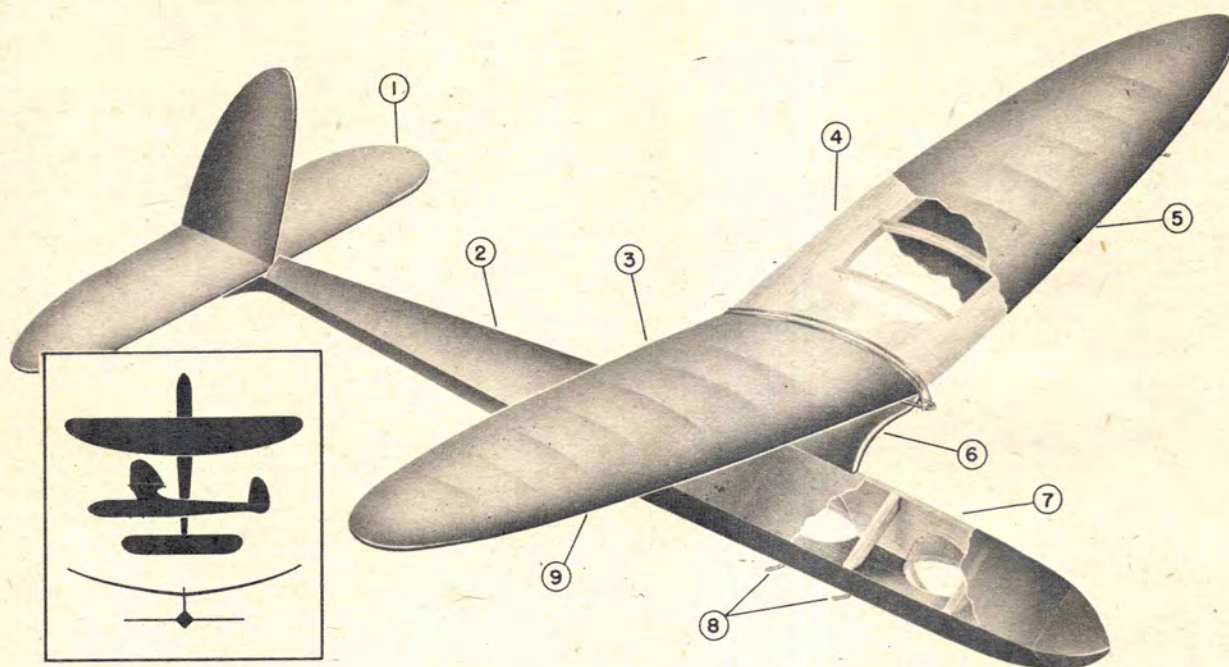


(1) License decals; (2) die-cut 1/16" sheet top, sides, bottom; (3) die-cut tail surfaces; (4) 20" shaped all-balsa Holl-O-Wing; (5)

formed steel spring-type landing gear; (6) die-cut, notched formers; (7) plastic prop; (8) plastic cowl; (9) hardwood struts.



Prefabbed glider for towline operation features "Ritz-type" wing with elliptical dihedral; two-foot Terror has plenty of performance for its size—provides good beginning for glider fans



(1) Thirty-square-inch stabilizer; (2) tissue-covered fuselage; (3) wing has 76 sq. inch area, span of 24 inches; (4) one-piece wing

outline, ribs set in easily; (5) elliptical outline; (6) pylon wing mount; (7) "Circlimatic" X-keel fuselage; (8) offset tow hooks;

(9) elliptical dihedral. Gerald Ritz of pre-war Chicago Aeronauts club is generally credited with the development of the wing.



■ Our first impression of this new Berkeley kit was one of awe—the box is more than 3½ feet long, and when we opened it there was enough balsa crammed in to stock a hobby shop! Yes, this latest *Hogan* is a big airplane; it has a wing area of 700 sq. in., which accounts for its alternate name of *Super Hogan 70*. To complete the statistics right here, the ship has a span of 67", weighs around

32 oz., and is designed for Class B-C use, with engines from .29 to .51 cu. in.

As with former *Hogan* kits, this one is marketed by Berkeley Models, Inc., West Hempstead, N. Y., and the plane is a design of West Coast modeler Denny Davis. The initial *Hogan* design to gain prominence was the *San De Hogan*, presented as a construction article in *Air Trails*, November 1949. It has been widely duplicated throughout the world.

There are eleven sheets of printed balsa, ranging in thickness from 1/16" to ¼", for such members as ribs, formers, tips and so on. All these parts are neatly die-cut. One item builders are sure to like is the shaped leading edges for wing and stab. Plywood is die-cut, and the landing gear wire is bent.

As deserves a king-size kit, the plan seems big enough for a tablecloth. It includes a full-size drawing of wing and stab halves, full-size fuselage drawing, plus many detail sketches.

The *Sandy Hogan* has won so many contest events that we couldn't possibly list them here. Not only is it a success on the Coast, but these ships have collected plenty of hardware at the Nationals, at the Plymouth Internationals, and just about everywhere free flight is flown.

The *Super Hogan 70* is very similar to the *Air Trails* job, differing mainly in some of the construction details. For example, the wing now features "Hoganamic" construction; the ribs are all set diagonally, producing a structure that is extremely rigid and warp-free. Sheet balsa is used at both leading and trailing edges, and together with the three spars and the nose ribs, you get a really rugged structure. The floating wing tab is retained, for Davis considers it essential in a ship of this size. He has had great success with it.

The stab is identical in construction, though without dihedral, while the rudder is built-up and symmetrical, with an adjustable tab at the rear.

The fuselage is made on a crutch and is completely sheeted. A parachute dethermalizer is recommended. The plans give full details for installation of this essential, and for motor mounting, motor cut-off, etc. While a K&B 29 with an Air-O 11" prop is recommended, other powerplant combinations can, of course, be fitted. They may require different degrees of down and side thrust from those specified on the plan, however. This is a well-engineered kit of a ship well known by now to every contest-goer. The new design has now become a "standard."





■ A proven towline glider design with the latest prefab ideas is a new kit release from Enterprise Model Aircraft and Supply Co., Inc., 5107 Avenue D, Brooklyn 3, N. Y. Designer Jerry Brofman first flew a glider of this general size and layout some 12 years ago; the little ship has been constantly flown and improved since. One of the intermediate designs set an unofficial

world record of 53 min. O.O.S.

This towliner differs from most other ships of this category to which we are accustomed. In the first place it is small—span is only 24"—and the area is 76 sq. in. The aspect ratio is also relatively low—only 6 to 1—but this rather stubby wing is extremely durable, and the little glider may be safely flown in weather that would be fatal to long slim wings. Another unusual feature is seen in the pylon wing mount; in fact, Jerry's latest looks a lot like a Half-A power job.

The airfoil is very similar to the famed McBride B-7; it has an extremely high lift coefficient, which means that it will produce ample lift at very low flying speed. This section also has a low stalling speed, and the plane will turn very tight circles without dropping off on one wing. The tow speed required is moderate and the glider can easily be pulled to almost directly overhead, utilizing practically all the allotted towline length. In really dead air, the *Terror* is said to average 1½ minutes per 100 feet of line length.

The wing is die-cut from two sheets of 3/32" x 4" balsa, and is of the so-called "Ritz" construction, producing a very thin but efficient structure. Two inches of dihedral are cemented in when the panels are joined. Covering will add 2" more of

curved dihedral, so that the finished wing is elliptical both in outline and dihedral, long recognized as an extremely efficient set-up.

The fuselage is a good example of really modern die-cut construction. There is a single horizontal keel into which is keyed a vertical half-keel on both top and bottom. Viewed from either end this assembly looks like a cross; the four edges of the cross are "tied" together with 1/8" sq. diagonal braces. It is easy to see why the designer refers to this fuselage as "Circlimatic" construction. Die-cut lightening disks are cut in all three keel pieces.

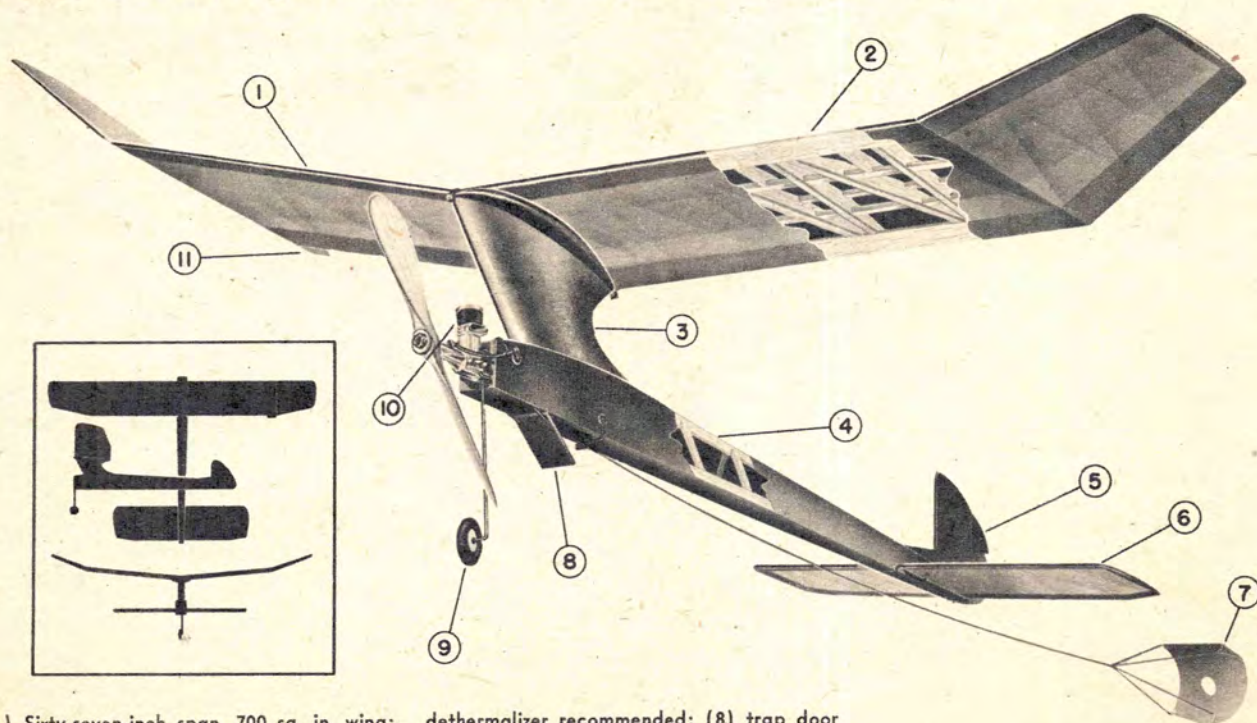
The two vertical keels are held firmly to the horizontal member by accurately matched notches, so they require no jigs for alignment while the cement is drying.

The nose is a solid balsa block and hooks are set so that a straight tow and circling glide may be had. When Skysail-covered, the assembly is practically indestructible.

Conventional die-cut tail surfaces of 1/16" balsa complete the very capable little ship.

Dyed-in-the-wool towline fans who believe that no towliner is a good towliner unless it is a gigantic job are urged to try a *Terror* before they pass judgment on this perky little soarer.

### Denny Davis' latest kit job by Berkeley features new "Hoganamic" construction

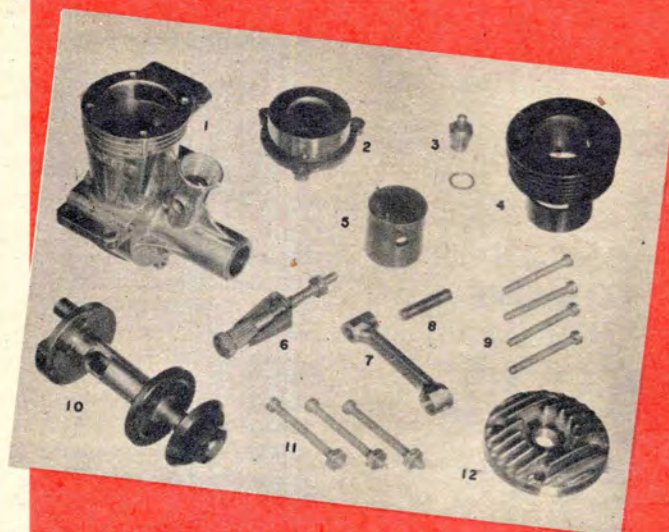
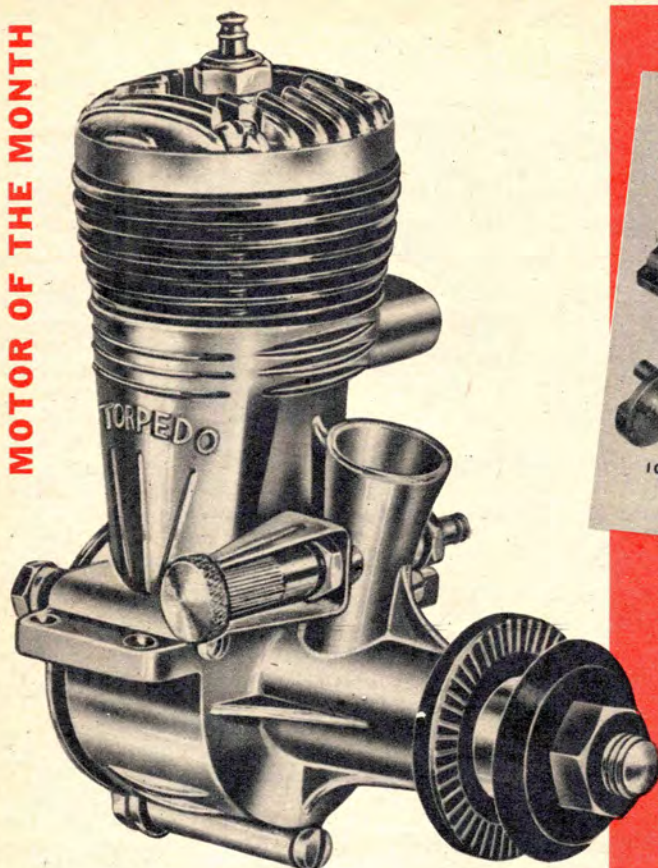


(1) Sixty-seven-inch span, 700 sq. in. wing; (2) "Hoganamic" W-set ribs; (3) built-up, 1/16" sheet covered pylon; (4) built-up sheet covered fuselage; (5) screw-adjust tab; (6) 342 sq. in. stab; (7) parachute

dethermalizer recommended; (8) trap door for chute; (9) fixed landing gear; (10) .29 to .51 engine; (11) free floating tab. Plan-form is typical Davis configuration which has made Denny's name a byword in post-

war free flight circles. The Hogan series has been widely duplicated here and abroad.





## K & B .29 and .32 TORPEDO

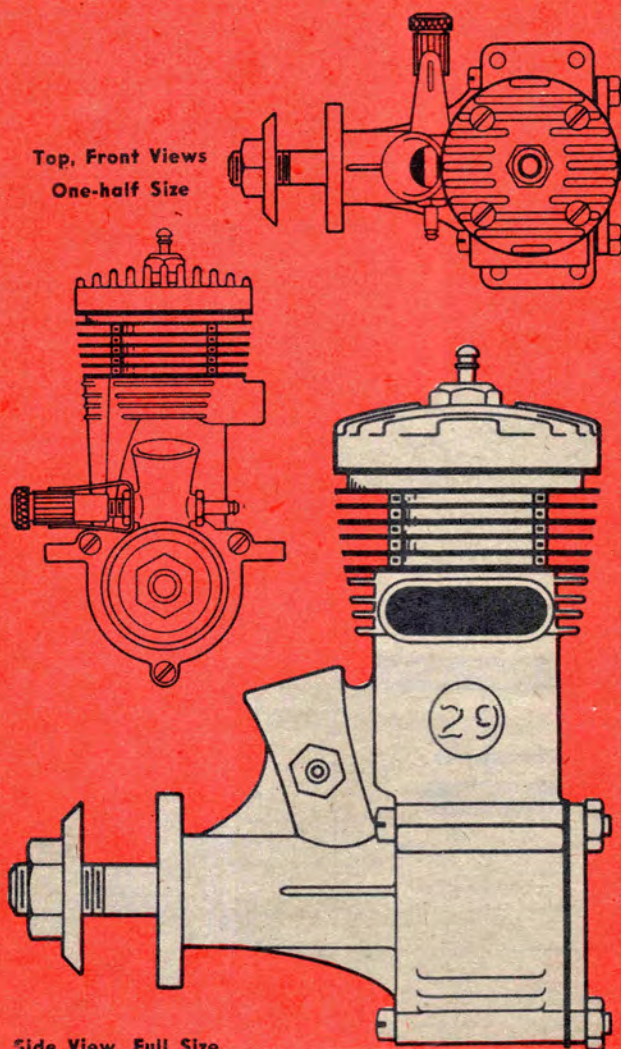
**Practically everything new but name, yet parts interchangeable with previous models**

■ There is nothing new about the name (.29 and .32 K&B Torpedo) but there has been a radical change in the engine, giving it brand-new performance and appearance. The manufacturer states: "By redesigning the old .29 and .32 we picked up about twenty percent more output and added a new look. The change-over was accomplished without obsoleting the thousands of Torps that are now in use. All parts remain interchangeable and that is a very important point." The new .29 and .32 looks very much like the K&B .19 and they have many similar construction features.

The increase in power was produced by changing many details on the engine. A revision in the cylinder head gives a smooth flow of gases but still maintains the high compression ratio. A large tapered bypass similar to many of the new racing engines was incorporated; and the weight of the piston and connecting rod was reduced to give higher speed and less vibration. Also a new aluminum alloy was adopted for the connecting rod to resist cracking under the strain of high-powered fuels. The needle valve was changed to give finer adjustment. Appearance was greatly improved by using smooth aluminum die-casting with carefully placed ribs and braces.

The new K&B .29 has outstanding pulling power in the 10,000 to 12,000 rpm speed range. It also has a strong fuel suction that helps deliver constant power output under changing fuel pressure. This combination makes the engine exceptionally suited for stunt, as was the former Torp. It is a good all-around (Continued on page 68)

Top, Front Views  
One-half Size



Side View, Full Size





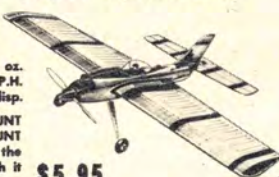
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Wing area ..... 470 sq. in. Speed ..... 60 to 75 M.P.H.  
Length ..... 30 3/4 in. Engine ..... .23 to .35 disp.

Here is the sensational performance record—SENIOR STUNT EVENT won by Buzz Ferguson with 390 1/2 points. OPEN STUNT EVENT won by Lou Andrews with 418 points. Lou won the National Stunt Championship (for highest score) and with it the coveted Jim Walker Trophy.



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MODELS



Wing Span ..... 23 1/2 in.  
Wing Area ..... 118 sq. in.  
Length ..... 15 1/2 in.  
Weight ..... approx. 4 1/2 oz.  
Engine ..... .033 to .049 disp.

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RUSSIAN MIG-15



REPUBLIC F-84 THUNDERJET



N. A. P-51 MUSTANG



GRUMMAN P-6F PANTHER



LOCKHEED C-69 CONSTELLATION



LOCKHEED F-80 SHOOTING STAR



VOUGHT F7U CUTLASS



LOCKHEED P-38 LIGHTNING



N. A. F-86 SABRE



BOEING B-47 STRATOJET



REPUBLIC P-47 THUNDERBOLT



VOUGHT F4U-1 CORSAIR



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## CORSAIR F4U-5

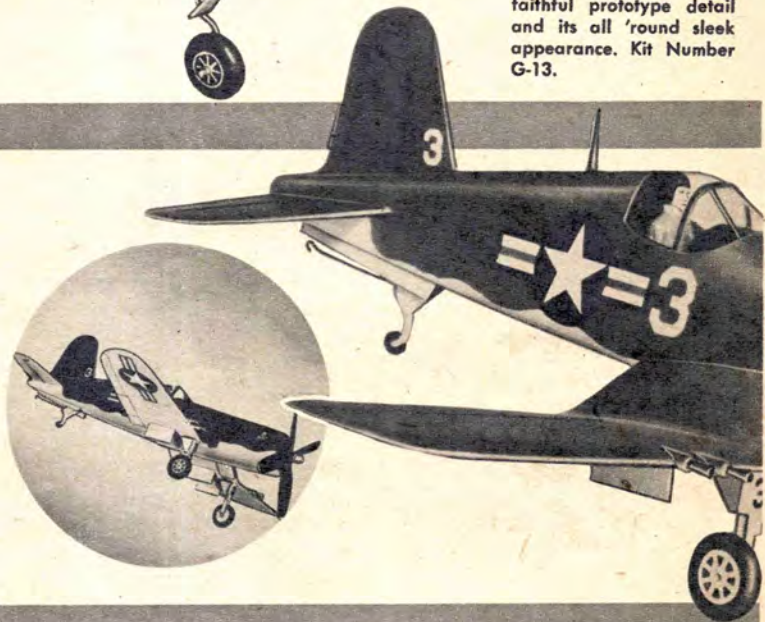
A thrill to look at and the most efficient carrier-based aircraft of World War II. That's the Vought Corsair. Now also used as a land-based straffer and bomber providing cover and blasting power for U. N. forces in the East. Get this gull-winged SPEEDEE-BILT MODEL with plastic cannon. Build it today. Kit Number G-14.

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Plastic Cannon  
Plastic Pilot  
Plastic Cowling  
Prefabricated Fuselage and Tail Parts, in Full Color and Precision Die Cut  
Monofoil Wings (Right, Left and Center Sections)

Three-Color Genuine Decals  
Rubber Wheels  
Landing Gear (Specially Formed)  
Plastic Canopy (Detail Molded)  
Rubber Loop  
Detail Picture Plan

AND 11 OTHER PARTS

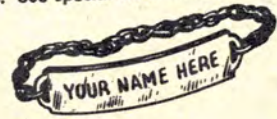


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An airplane the world will never forget. As the "Tiger Shark" it gave valiant service in China. Later, the Warhawk was an effective power house in North Africa. Build this SPEEDEE-BILT MODEL and the Warhawk will be the most popular plane in your collection. Three-Bladed plastic prop and ferocious tiger mouth decals are some of the extras you get in this kit. Kit Number G-15.

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Plastic Cowling  
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Monofoil Wing (Left and Right)  
Formed Plastic Canopy  
Rubber Wheels  
Complete Landing Gear  
Three-Color Genuine Decals  
Rubber Loop  
Detail Picture Plans

AND 12 OTHER PARTS

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# SPEEDEE-BILT *flying models*

## SABRE JET

All These Parts in This Kit

|  |  |
|--|--|
| Plastic Cowling  | Plastic Canopy (Detail Molded)         |
| Plastic Pilot  | 3-Color Decals                         |
| Plastic Rockets (4)  | Rubber Wheels                          |
| Plastic Exhaust  | Metal Landing Gear, (Specially Formed) |
| Famous Monofoil Wing (Right and Left)                            | Detail Picture Plans                   |
| Prefabricated Fuselage and Tail Parts, in Full Color and Die Cut |  |

AND 9 OTHER PARTS

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READY ABOUT AUGUST 15th

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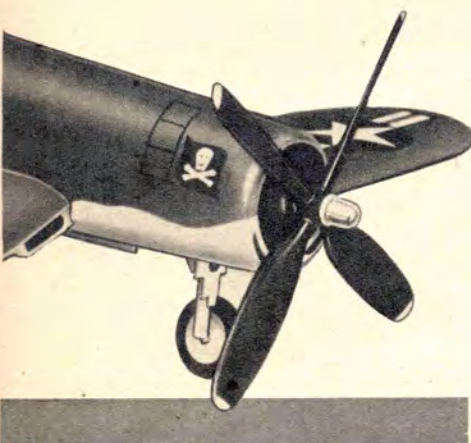
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News, Views, Comments and Photos from Model Clubs and Enthusiasts in U. S. and Overseas

# Dope Can



■ From many sections of the country come reports of model clubs having difficulty maintaining memberships and continuing active program schedules. In addition to the usual summertime lull in organized undertakings, the main trouble stems from the large number of active flyers who have gone or are about to go into military service.

Conversely, activity at Air Force and Naval aviation bases is on the upswing and we're hearing from more and more modelers-in-uniform every day. But the "civilian" clubs are having tough sledding in many communities. Clubs disband overnight; members go into uniform without notifying the secretary—meetings are called, nobody shows up.

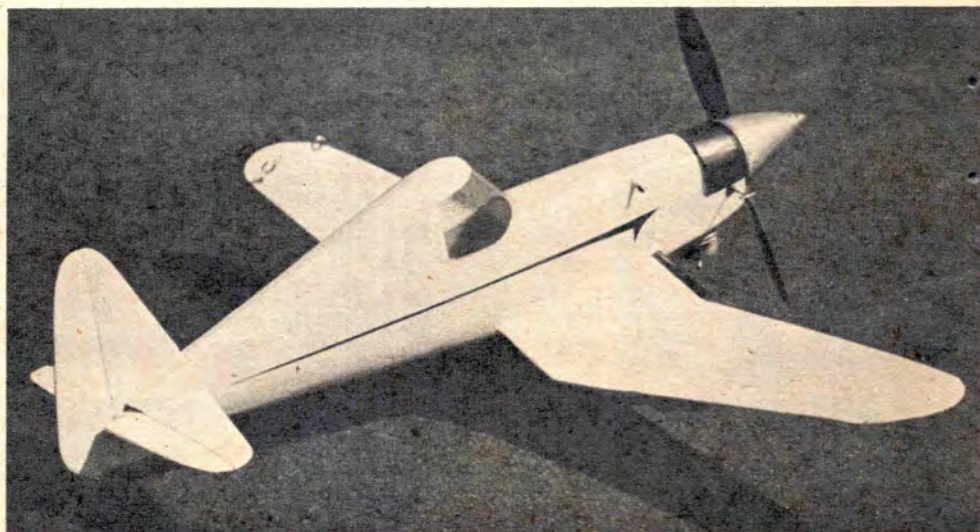
Well, that sort of thing is to be expected. After all, the average modeler active in club work is about 17 years old and can never tell today where he'll be tomorrow. To keep abreast of the changing club picture, AT institutes with this issue

a new method of handling club listings.

Regular AT'ers will recall that once a year for the past several years we presented a complete by-state-and-city listing of all active model clubs brought to our attention. That was all well and fine before the clubs ran into organization trouble; now, something more frequent is needed. Obviously the magazine couldn't run the names of some 1,000 clubs every issue—that'd take too much space. So here's the plan: each month AT will list as many active and inactive clubs as possible and publicize changes of address for the president, secretary or contact man. This last feature is very important—many times a club carries on but a secretary moves and as far as outsiders are concerned nobody knows that the organization still exists.

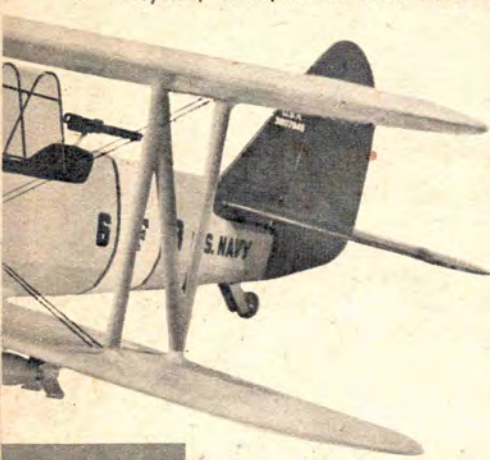
So if you're the publicity man for your club, keep your eyes on this listing each issue and keep your records up to date. Should you find your

Original 30" span job for team racing or "proto" speed by Everett E. Slocum, Tillamook, Ore. Remember: "AT" pays \$5 each for photos used here that are submitted exclusively.





Outstanding example of U-control flying scale—a Chance Vought SBU-1 by R. E. Heyman, Union, N. J. Power is Atwood.



group among the "inactives" because of an old address from which mail is being returned, let us know about the right listing just as soon as possible.

**Inactive Clubs**  
(Mail returned—delete from master file)

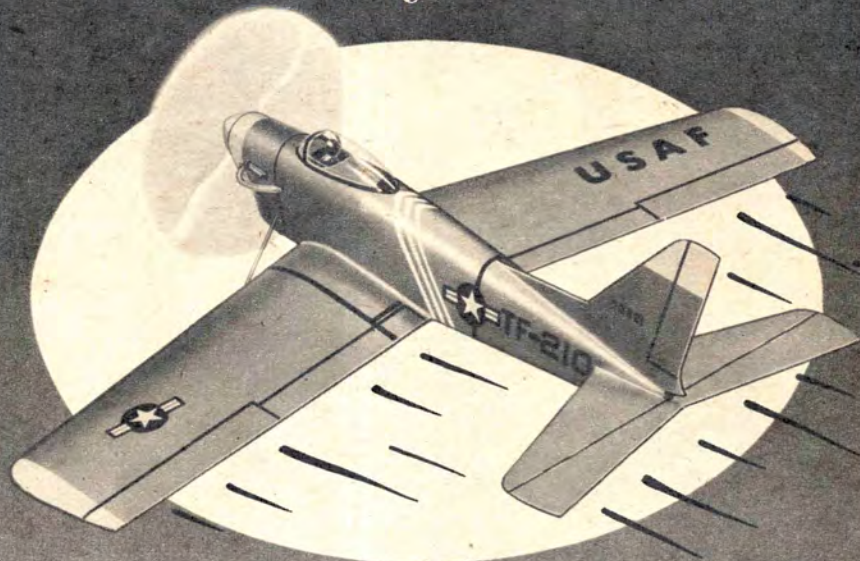
Phoenix, Ariz., Model Airplane Club  
Tucson, Ariz., Thermaleers  
Santa Monica, Cal., Aeromodelers  
Santa Rosa, Cal., Sky Bugs  
Petaluma, Cal., Do-Little Flyers  
San Rafael, Cal., Marin Air Pirates  
Richmond, Cal., Aero Modelers  
Burbank, Cal., Wing Twisters  
Hamilton, Cal., Hamilton Field Aero Club  
Fresno, Cal., Control Flyers  
Berkeley, Cal., Vapor Trailers  
Santa Monica, Cal., Bay Cities Modellers  
San Francisco, Cal., Mustangs  
Bellflower, Cal., Balsa Butchers  
Bell Gardens, Cal., Thermal Thumbers (Cont. on page 72)

Guy Hoffman test glides his meet-winning O&R 23 powered Super Phoenix in Peru.



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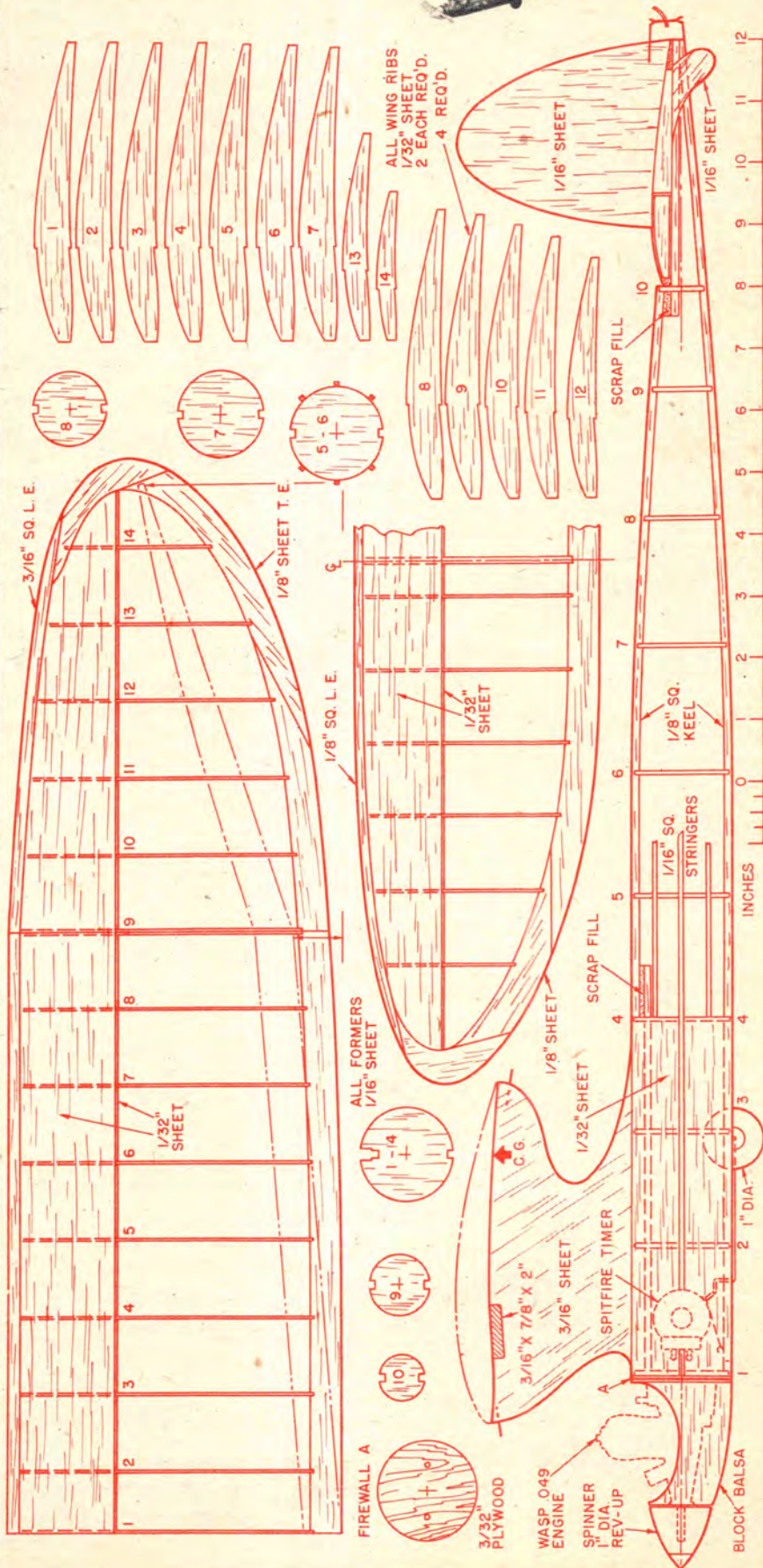


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# Ollie

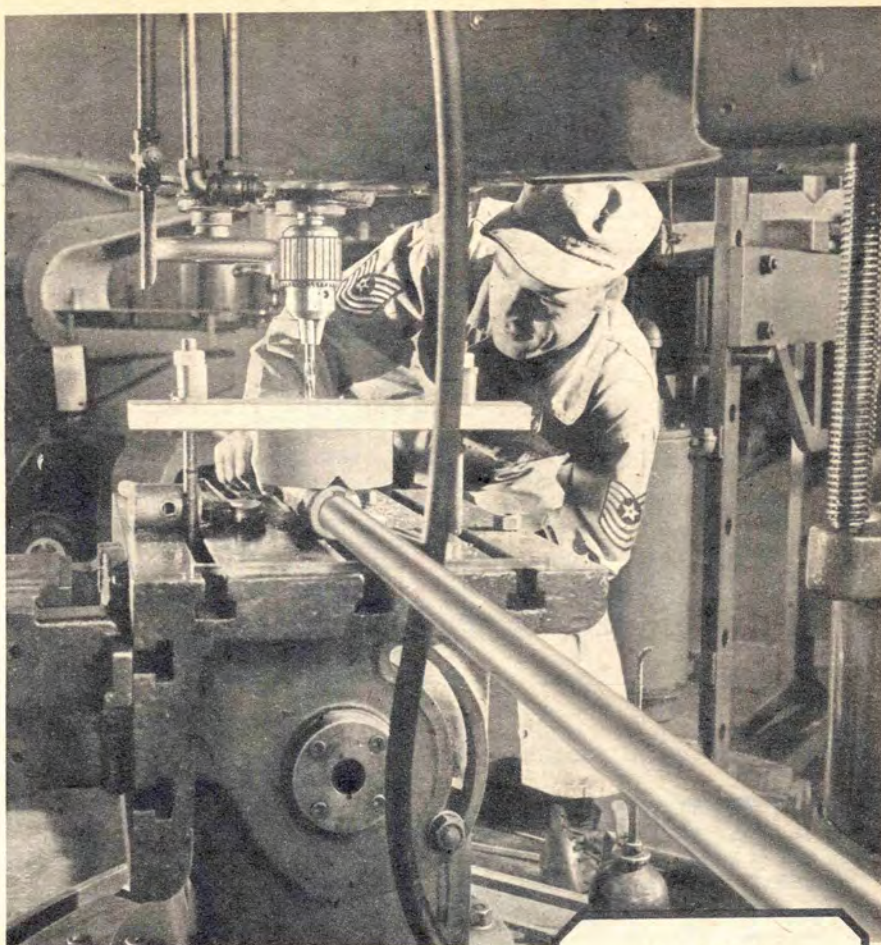
By JOHN HUMPHREYS

■ The aim with *Ollie* was to get a model that was different from the square wing and tail designs, and square bodies of nowadays, and to have it fly with superior qualities. Two models were made, Bill Mickelsen's and the author's. These racked up 2 firsts, 1 second, 1 third, and a national record for the author in only four contests!

Fuselage is built upon a  $\frac{1}{8}$ " sq. keel; formers of one side are added while on the board. Unit is removed, formers on other side are added. A  $\frac{1}{16}$ " sq. stringer is added to each side from front to rear, then the other stringers are added from #4 to rear along with the pylon. From #1 to #4 is planked with medium hard sheet; bend to approximate shape before adding. The rest is planked with medium  $\frac{1}{32}$ " sheet between stringers forming an octagon. Cover entire fuselage with Jap tissue.

Thanks to Bill Mickelsen's unique construction idea, we have a light warp free and warp resistant wing. Cut trailing edge, pin to plan. Lay down leading edge, add ribs. Put required dihedral in, let it dry thoroughly. Cut the soft sheet leading edge (top and bottom) planking and put it on. *Don't muff the next step:* Put  $\frac{1}{32}$ " hard sheet (grain vertical) in between the ribs from top planking to bottom planking and glue well. While glue is wet, pin section to flat board to assure no warps. The stabilizer is made in the same way.

When a smooth glide is obtained, adjust the model for 100 ft. right circle, then for a fast corkscrew right climb—about  $\frac{3}{32}$  of an inch left thrust is added for this.



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spilling entire contents. Size approx.  
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## Plane Talk

(Continued from page 8)

Airways of Montreal. This is the first  
Canadian-built helicopter to be cer-  
tified. A single rotor job, this one  
had a four-bladed main rotor, and is  
reportedly sufficiently stable so that it  
does not require an autopilot. What  
most people do not know is that half  
of this team, Selma Gottlieb, is a very  
handsome gal who reportedly has a  
standing offer from Billy Rose if she  
ever tires of wielding a slip-stick.

Questioned about what they intend to  
do after completing the three-year job,  
Gottlieb and Bernard Snycer replied:  
"Rest a while—then find us another  
helicopter."

AVRO Canada tells us that their Jet-  
liner is now furnished with a fault  
analyzer which will tell the pilot the  
location and nature of any existing or  
impending breakdown in the airplane's  
AC electrical system. The analyzer in-  
corporates a bank of warning lights or  
indicators on the control panel. These  
are actuated by electro-magnetic relays,  
which are so connected that they will  
indicate any fault due to overload, sys-  
tem failure or over-voltage, and will  
show where the trouble is happening  
or about to happen.

Did You Know that barring the use  
of atomic engines, it would take a  
chemical rocket about the size of the  
Empire State Building to carry enough  
fuel to take a crew of three to the  
moon?

## R-C

(Continued from page 12)

N. Y. 7.)

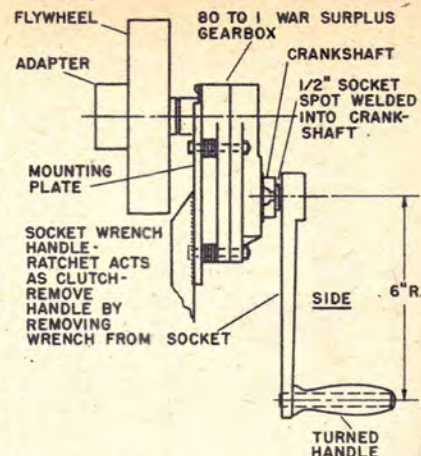
Another good book, "Radio Control  
for Models" by G. Honnest-Redlich, is  
published in England; very complete  
with much information of interest to  
American R-C flyers. (Polks, 314 5th  
Ave., N. Y. 1, has it.)

Contest News. Herb Owbridge of  
Rudevator fame is convinced we should  
have standardized R-C event (specs  
covering size, weight of ship—rather on  
Wakefield order) to induce flyers with  
no contest experience to get into the  
battle. Feels it should be strictly one-  
control, with simplified maneuvers.  
Dunno—sounds sort of like putting a  
straight-jacket on R-C development. Of  
course, lots of the so-called "sport  
flyers" hesitate to enter R-C meets  
against such flyers as Walker, McElwee,  
Foxworthy, et al. We've heard novice  
flyers say, after watching well-known  
R-C operators in action, "Shucks, I've  
been doing that well in my back pasture  
at home. Guess I should have entered  
this meet after all." Maybe Herb has  
something—what do you think?

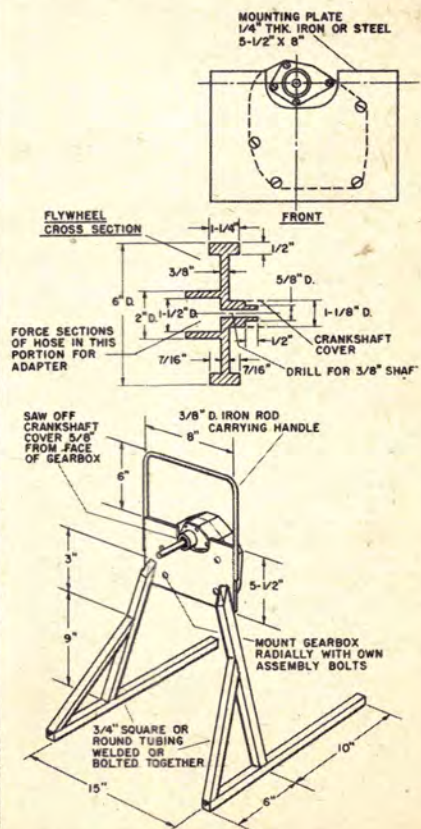
R-C meet at Mirror Model Flying  
Fair flown in perfect weather. Thirty  
flyers turned in flight patterns—148  
entries. Some fine stunts seen includ-  
ing consecutive loops and Immelmans.  
Top winners: P. D'Ostilio, Bridgeport,  
Conn.; F. Yuhasz, Linden, N. J.; C.  
Schmaedig, Rahway, N. J.

Let us know what you want to see  
in our new column—send all news and  
comments to "R-C Reports" care of  
Air Trails.

—HOWARD G. MCENTEE



■ Using a surplus gear box (80 to 1  
ratio job) Earl Cayton, Salem, Ore.,  
made this engine starter for \$20.  
Lighter than an electric starter, it's  
easier to transport. A machinist  
with welding equipment is needed;  
have him follow these instructions.





## Mac's Robot

(Continued from page 36)

Hand glides were used with the original. In calm weather use a 9/3½ prop and in wind a 9/6 prop does the trick.

Under low power the downthrust may not allow much of a climb, so use about a minute's engine run for these early flights. You will find a few seconds pulse will produce a turn. If the plane tends to straighten out, merely skip a movement and another short pulse to continue the turn.

For windy weather flying, trim the ship by inserting balsa shims over the trailing edge of the stab, adding positive angle. A maximum of 3/16" should suffice for the most windy day you might care to fly on. Learn the settings and trim your ship for the conditions. Leave the engine and wing as shown and merely vary the stab.

For the windy days, keep the climb shallow. Also a snappy escapement is needed, there must be no skipping and no lags. A fraction of a second lag or wrong rudder and the mistake is made, usually meaning a turn back into the wind and loss of precious distance. Always fly as well upwind as possible.

The escapement should work down to the last few turns, and around four hundred turns are put into the rubber motor. This is an ample supply and the escapement sometimes is used almost like a pulse-motor, especially in the glide in the wind.

A slightly higher thrust line is used, which is noticeable in trying to loop. The Robot doesn't loop quite as easily as the Radart but, with a little practice, it can be done. Excellent Immelmans can be accomplished by giving it rudder on the top of the loop, so that it'll roll right out. The Robot really comes down in a spiral—hence allow plenty of altitude for these maneuvers. On neutralizing the escapement in a spiral, the response is immediate and opposite rudder will stop the spiral in nothing flat. To get a good loop, "walk" the rudder; that is, touches of rights and lefts will help maintain a straight loop. The Robot has been designed for these stresses, so don't worry about your wings pulling off!

With practice even barrel rolls can be done. It usually comes by holding a turn for one spin, neutralizing, and on top of the climb, rudder is applied in the original direction and when the nose drops, neutralize again and on the bottom of the dive, again the rudder is kicked in. Not always but many times a roll can be performed in this manner.

If any take-off difficulties exist, some or all the downthrust may be taken out, especially for one of the official flights if in a contest. However, the ship will now really climb upstairs, so keep her turning and use this flight for your loops and such. Also, since you'll gain altitude fast, keep the engine run relatively short on such a flight.

As a help for close-spot landings, fly a pattern not unlike that of the full-scale ships. Establish a base leg and vary your approach turn according to conditions. Tend to over-shoot—altitude can be lost but not gained. If over-shooting, mild S-turns help drop the ship much quicker and, many times, fast rudder action, rights and lefts, although not apparent because the ship doesn't start to turn, will cause the ship to partially stall out and sink rapidly. If done near the ground, as it usually is, the landing suffers as the plane will hit hard.

On this design, full turns should not be attempted too low as it drops fast, a tendency of any heavily loaded plane. For the best landings, make the last turn high and a fairly long straight approach and it'll really "grease" it.

I believe that you will find this plane highly maneuverable, yet an easy one to fly. Everything that's been learned from each of the preceding Robots and Radarts has had an influence on this design. And she's designed to take any R-C set-up.

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Yet nothing is sacrificed in these Cleveland kits. Our 33 years of model designing have taught us never to be content with mediocre performance. Built-in design features, and an extra large, helical pitch plastic prop that will not only whisk the model off the ground, but will pull it steadily through a long, buoyant

flight, are just a few of the reasons why these models not only fly, but are engineered to fly several hundred feet! Amazingly prefabricated in realistic detail.

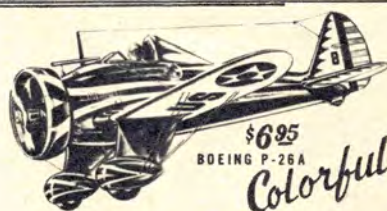
They're the height of prefab technique! Our "Quicky" kits are more nearly "knocked-down" models, than they are kits. Camber and dihedral are ready-formed in each 18" span wing. You'll marvel at the lightness and ruggedness that result from their ultra-simplicity. Moreover, each model, when assembled, is already decorated in colorful, sleek, modern designs. Get these three "Quicky" kits right away! Put them all together tonight, and fly 'em too. You'll have the time of your life!

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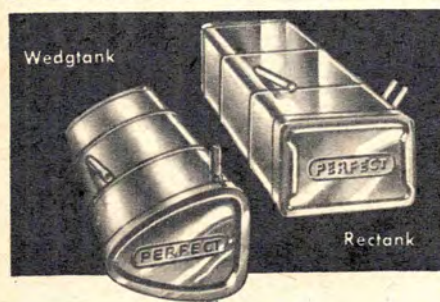
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■ The Western Wakefield semi-finals at Tracy brought out some interesting models. Most unusual were those developed by that well-known designer, "Hank" Cole. The ships are very long—just over five feet from nose to tail, small in cross section, only two inches square, with the necessary area added in various ways, through a streamlined wing

mount, a bump on the bottom of the fuse, and a variation of these two. There were four of these models in the meet, all had the same basic design set-up with the modelers' individual touches.

Hank's, being the original ship, was the groundwork for two ships which will be flown in Finland. Along with this long fuse, he had a single-blade folder, on which the counterbalance folded forward when the blade folded back; he used generous fin area, with as much under as on top. Wing dihedral was very low, having a long flat center section. Model weight was low, due to the use of indoor wood and superfine tissue. They used virtually no slack in the rubber motors. The landing gears were  $\frac{1}{8}$ " balsa and had a delayed action in retracting.

The take-off of these models was a joy to watch. The builder held the ship by the wing and prop for true unassisted take-offs. When released the models seemed to hesitate for an unusually long time, then majesti-





Columnist Dick Everett didn't identify this wing and stab for us, but it's of such interest we run it without being able to credit the builder. A true geodetic wing and stabilizer, no spars, all ribs are full depth. Magnificent.

cally moved forward and up. The climbs were fairly fast and they got up good, the glides were sensational since the prop runs did not seem as long as they should be on such craft. The glides were slow and floating. The times put up by these models were not indicative of what they will do, since the air seemed very much alive, consequently there is a lot of doubt as to whether these ships have any advantage over models of shorter length.

With all the work put into getting these ships light, using materials not generally available, we can't help but understand why so many fellows stay away from Wakefield models. The present rules being what they are, the average modeler just doesn't have a chance in an elimination. The contest doesn't seem to be one for flying as much as one for seeing who can build the lightest models with the most rubber. Since he doesn't have to worry about cross section, a fellow can build as long as he wants, provided he can get that special kind of wood to keep the model light.

We wondered, after following the meet at Tracy, just what the average model builder thought of the present Wakefield contest, as set up by the present rules. The consensus of opinion was that it would die a slow death in this country, unless the rules were modified so that the average fellow could build a ship that could compete on an equal basis with those of the more fortunate builders who have everything at their command.

When asked what they thought of going back to the cross section rule, the contestants' answer was unanimous: yes, it's a good idea. When asked what they thought of having to build a model to a minimum weight the answer was also yes. Another big question asked was about flying all day long and having more flights totaled; the answer was the same. Perhaps this is the basis for a lot of thought. What do you think? Drop a line to the A.M.A. rubber power committeeman nearest you and tell him your ideas. Send a copy to AIR TRAILS so we can publicize your particular reactions.

Mom and Pop Robbers came up with a very unusual and promising idea in running the Semi-Finals which proved to be a boon to contestants and one which has caught on like wildfire in California. They brought over a bunch of U-controls fellows from the W. A. M. to work along with (Continued on page 79)

Tom Protheroe of the Valley Hawks with his unique Half-A PAA-Load model featuring a cabane mounted wing and enclosed cockpit. Wing has 180 square inches of area, the stab 85 square inches. Berkeley fuel meter shut-off.

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- |  |  |
|--|--|
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**Q and A**

**QUESTIONS ON ALL PHASES OF AVIATION AND MODELING WITH ANSWERS SUPPLIED BY AIR TRAILS' BOARD OF EXPERTS**

**R-C Glider Records . . .** Am interested in the record for duration, official or unofficial, for a radio-controlled model glider or sailplane of 9-ft wingspan, weight under 3 lbs. (2 lbs. 9 oz.).

Would like to have an idea of a time to shoot for or maybe even pass as I have a sailplane as described that should be capable of controlled ridge or thermal soaring of a minimum of an hour, in this country.

A perfect controlled flight was made last Sunday in poor or erratic wind conditions, of 30 minutes' duration, before the wind dropped out and the plane grounded. That was its first flight since being rebuilt completely.

*R. K. White, San Bernardino, Calif.*

• No official records have been established for radio-controlled duration. Control by radio has been specifically prohibited by the A.M.A. towline rules. For unofficial times we suggest you contact Dr. Walter A. Good, Chairman, Radio Control Committee, c/o Academy of Model Aeronautics, 1025 Connecticut Ave., Washington 6, D.C.

**Cutlass vs. Sabre . . .** Some fellow AT readers and I have been arguing over the speeds and flight of the Navy Cutlass and the Sabre jet. I claim that the Cutlass, having a faster rate of climb, would naturally be able to fly faster in level flight than the Sabre jets would.

In regular level flight, which plane is the faster and which the more maneuverable? Also, why aren't they using more Cutlasses over Korea?

*Don Mehlburger, Little Rock, Ark.*

• The problem is not as simple as you state it. A fast climbing plane is not necessarily faster in level flight. An airplane with light wing loading will climb faster than one with heavier wing loading, but it is not necessarily faster in level flight. Planes with lighter wing loading are more maneuverable. The Cutlasses are not in Korea because the Navy just recently started to get delivery of them.

**To Qualify as Army Aviator . . .** In the article "Civilian Pilot Training" you stated that: "Civilian pilot training now is credited in awarding the Army wings, awarded only to Army officers after a special course of training at the Artillery School at Fort Sill, Okla."

Here's my problem:  
I possess a Commercial Pilot's license and am now working toward a commission in an artillery unit in the Army National Guard. I would like to know what you based your information on. You see, according to the information my adjutant has, I am still required to go to the Army Aviators Flying School, located at Connally Air Force Base, Waco, Tex., before I can be qualified as an Army Aviator. After receiving the rating of Army Aviator I will then be sent to the school at Fort Sill. In other words, I will be taught to fly again at Connally AFB. It doesn't add up.

What's the answer?

*Robert Kaplan, Brooklyn, N. Y.*

• About Army Aviator training, ask your National Guard Adjutant to read Army Regulations 600-70-C5 on Issuance of Badges (Aviator Wings) and Special Regulations 605-65-1. In the latter, Paragraph 7a(2) on page 7 authorizes acceptance of 60 hours of solo flying, including 5 in the past 5 months, as a flight training qualification. Applicants without prior flying experience, or without enough hours, go to San Marcos Air Force Base for flight training by the Air Force. Then they go to the Artillery School at Fort Sill, Oklahoma, for tactical training. But the Regulations authorize that those with enough civilian flight experience may be sent directly to Fort Sill without AF flight training. The rating of Army Aviator is not given until after completion of the Fort Sill course. You must hold an Army commission, 2nd Lt. or above in Regular Army, Guard, or Reserve to qualify for this training. However, some helicopter



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training has been opened to enlisted personnel who become Warrant Officers on satisfactory completion. Probably it's a better deal to get your Guard commission first, if possible. All training, of course, is subject to available vacancies.

**Variable Incidence Wing . . .** You could be of great help to my school committee. Would you please explain what a variable incidence wing is?

*Robert Dorr, Silver Hill, Md.*

• It's a wing whose angle, in relation to the fuselage, can be changed. This is done by hydraulic or electric mechanism actuated from the cockpit.

**F-90 Figures . . .** I would like some info on the F-90 jet fighter. The speed, pounds thrust, armament, and cruising range.

*Robert Campbell, Turtle Creek, Pa.*

• The Lockheed F-90 is powered by two Westinghouse J-46 engines of 6,000 lbs. thrust each. It is supposed to be armed with several 20-mm cannons. Since the plane is not in service yet, no further data is available.

**What's the Plane? . . .** Is there a plane now in construction or design that has the following features: 1. Pusher type single engine. 2. Tri-cycle landing gear. 3. Two to four passenger capacity. 4. Cruising speed 170-180 mph. 5. Cruising range 2,000 mi. Such a plane was in design and construction in England two or three years ago, but I have been unable to locate any information concerning it.

*Capt. J. M. McChesney, San Fernando, Calif.*

• You undoubtedly mean the British Planet Satellite built around 1948-49 by the Planet Aircraft Ltd., London. It was a pusher with the propeller at the extreme end of the fuselage, driven through an extension shaft. It had a butterfly tail. As far as we know, no other plane of this type is being built here or abroad.

**To Become Airline Pilot . . .** I am a sophomore in high school and am interested in becoming a commercial airline pilot. Please send me information on how to go about this.

*Matthew May Jr., Cranston, R. I.*

• Commercial airlines usually set up their own standards for pilots, but these are generally based on C.A.A.'s Airline Transport Rating. You must be at least 23 years old, a high school graduate or better, have a minimum of 1200 hours of which 500 hours are cross-country flight time, 100 hours of night flying time, 75 hours instrument time. Instrument rating is required.

**To Cover Balsa Controliner . . .** I would like to know if there is any special kind of silk used to cover an all-balsa scale controliner and where can I obtain it.

*Fred Muesegaes, Bloomingdale, Ohio*

• If you are going in for cloth covering, we suggest you use nylon which is much stronger than silk and is applied in the same manner. A fine grade can be obtained from JASCO for about \$1.50 per yard. (Not sure of latest price, better check.) Their address is 203 East 15th St., New York 3, N. Y.

**Radio-Control Questions . . .** (1.) Do you need a government or a local license to fly a radio-controlled airplane with a radius of 2 miles? (2.) Do they make radio-controlled boxes with a radius of 2 miles? (3.) What would be the average cost of one if made?

*Dick Kukella, Auburn, N. Y.*

• (1.) An amateur license is required for any radio control transmitter, except those operating on Citizens Band.

(2.) All the commercial radio control equipment available today can be made to operate at 2 miles.

(3.) You can get a kit of parts to build your own for about \$20. Finished outfits cost about \$35 and up. You must have an amateur license to operate these. The only outfit you can operate legally without a license is MacNabb Citizenship equipment which costs about \$80.

**Cyclone to Glow Plug . . .** I have in my possession a Baby Cyclone ignition motor and would like to know if it could be converted to a glow plug motor inexpensively.

*Bill Belenis, Richmond, Calif.*

• A Cyclone engine can be operated with glow plugs. You could use a hot glow plug such as an Ohlsson AA with some high nitrated glow fuel in your present engine. Another procedure would be to buy a high compression head at some model supply house. They use an Arden or Champion glow plug with any of the cheaper glow fuel mixtures.

## Folkert's Racer

*(Continued from page 41)*

off the ground. Rather let the plane take off on its own and you will realize many hours of real flying pleasure whether you build this model as a team racer, speed scale job or class "A" sportster.

### BILL OF MATERIALS

**Fuselage.** 1 pc. 1/4" x 3" x 36" medium balsa, sides. 1 pc. 1/4" x 2" x 18" medium balsa, bottom. 1 pc. 2" x 3" x 30" medium balsa, top and nose. 1 pc. 1/8" x 3" x 4" plywood, firewall. 1 pc. 1/8" x 3" x 12" hard balsa, bulkheads. 1 pc. 3/32" music wire, 12" long, landing gear; 1 pc. 1/16" music wire, 12" long, landing gear skid. 2 pcs. 1/4" x 1/2" x 3" hardwood, landing gear supports. 2 pcs. 1/2" x 3/4" x 4" hardwood, engine mounts. 1 pc. 1 1/2" x 4" shim brass, landing gear covers.

**Wing.** 1 pc. 3/16" x 3/8" x 18" hardwood, spar. 2 pcs. 3/32" x 3" x 36" medium balsa, covering. 1 pc. 1/8" x 3" x 8" hard balsa, ribs. 1 pc. 3/8" x 3" x 4" soft balsa, tips. 1 pc. commercial dural, bellcrank. 1 pc. 1/8" x 1/2" x 3" plywood, bellcrank mount. 1 pc. .015" music wire, 24" long, lead-out lines. 1 1/8" dia. 3" long plastic tube, lead-out line sleeves.

**Empennage.** 1 pc. 3/16" x 2" x 24" medium balsa, tail surfaces. 2 control horns.

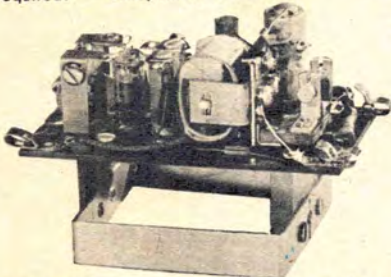
**Miscellaneous.** 1 3/4" rubber tire wheels, washers, solder, cement, wood filler, colored dope, brushes, Trim-Film, Froom aluminum spinner, 8 1/2" dia. propeller, crinoline, pins, rubbing compound, sandpaper, milk bottle wire, nuts & bolts, Tuff fuel proofers.





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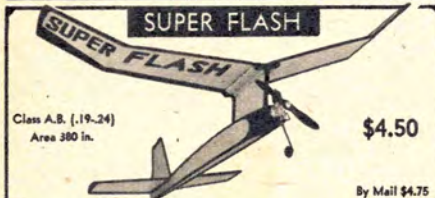
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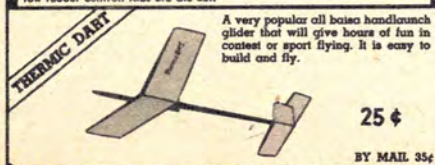
The SUPER FLASH is designed for tough flying competition. Construction is strong. Its flying ability is ready to make a name for itself. To get the utmost of its speedy climbing ability, adjustable wing allersons have been added to the wing.



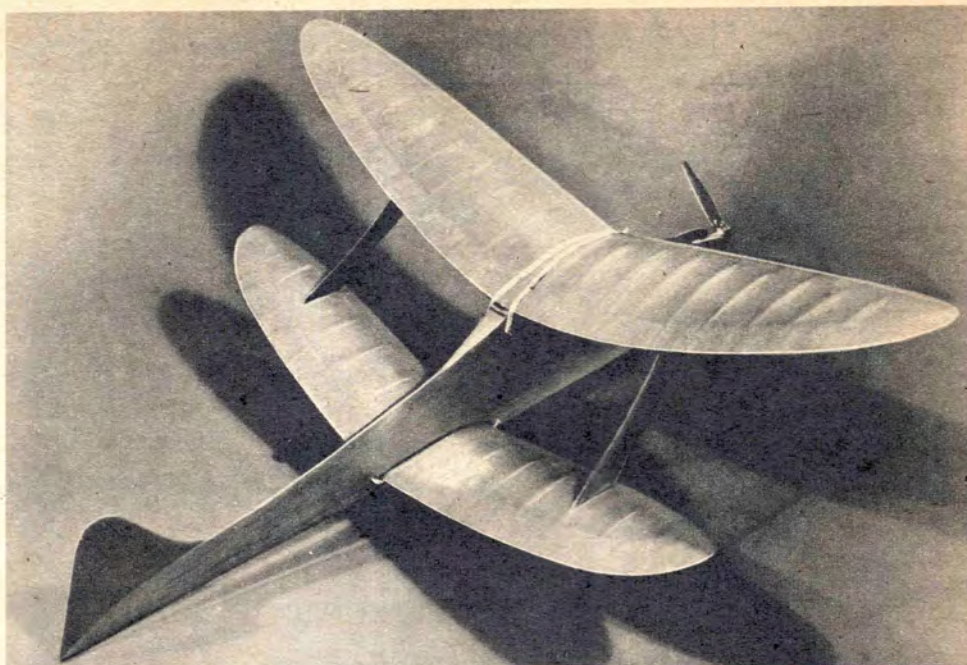
The PHOENIX SKIPPER quickly hops off the water, climbs high and comes down in a flat glide. The floats can be put on or off in a jiffy. Without floats the model makes a hot contest land plane with an exceptional flat floating glide. It can be therefore used in two contest events.



"It takes a Floater to beat a Floater". The new Floater should continue making and breaking glider records just like the original Floater. Towing on a 200 foot towline should be easy even in a 25 mile wind with the detachable tow rudder control. Ribs are die cut.

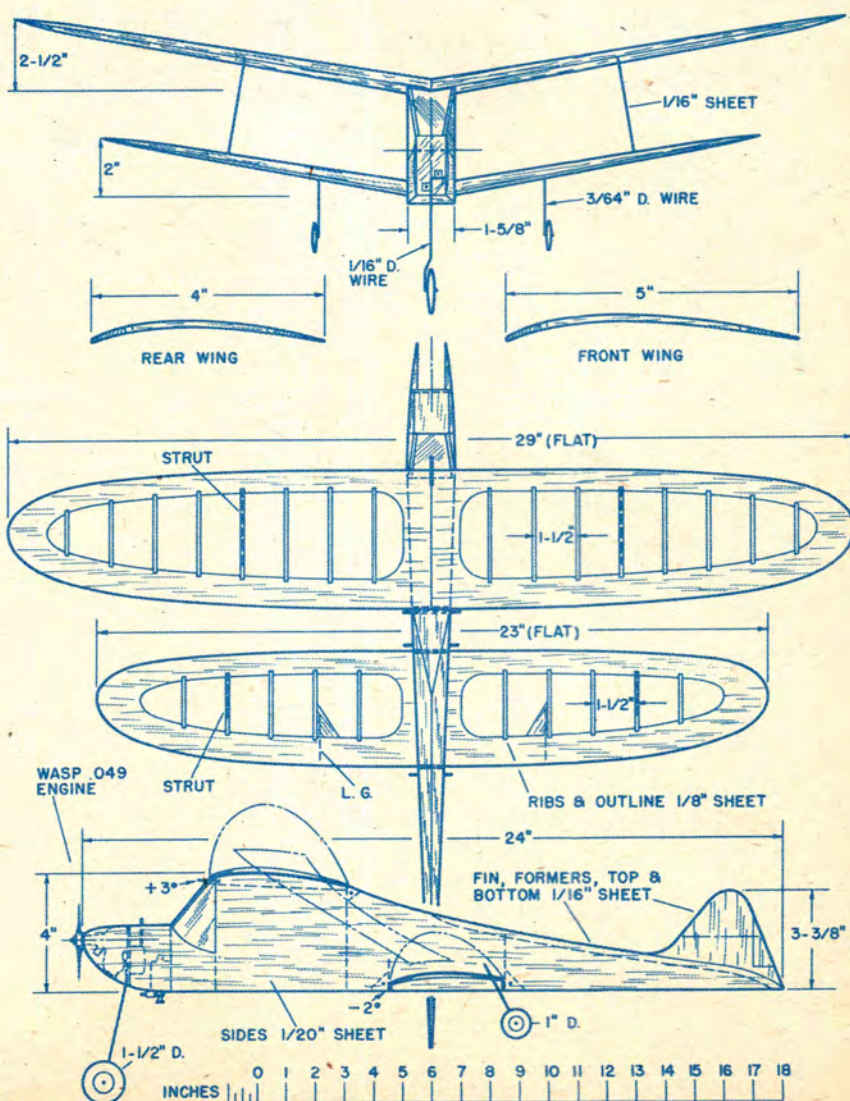


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## Alkie II

By ROLAND MAYER





■ This Half-A free flight configuration is characterized by its fine inherent stability, particularly with respect to stalls. This is achieved by employing an appreciable amount of decalage. In our particular model the main "Ritz" type wing was set at plus 3 deg., and the secondary wing (60% of main wing area) was set at minus 2 deg.

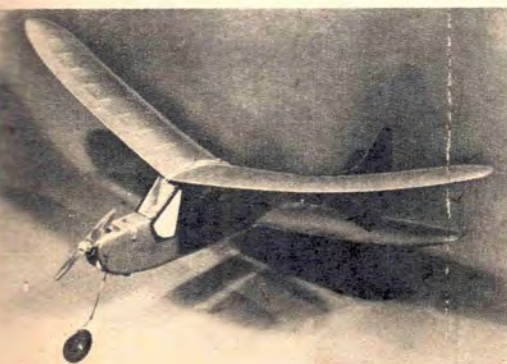
The idea is to have the secondary wing approach its position of maximum lift as main wing nears its stalling point. As a result, when the nose comes up and the main wing starts to lose lift, the lift on the secondary surface is approaching its maximum. This sets up a restoring moment about the C. G. which tends to return the plane to its normal flight attitude.

In flight the model was extremely stable and rolled out nicely on top. Although it was not designed for contest work, the climb was steep and steady and the glide as good as that of any conventional model.

Assembly of the fuselage is started aft, gluing the sides to the bottom sheet and pinching them together at the top. The various bulkheads, gussets, and other parts are added as the construction progresses forward. Before closing up the nose section completely, the engine, nose gear leg, fuel tank, and fuel shut-off are installed. The nose gear leg is bolted to the firewall, using two small clips bent from shim brass.

When the wings are completed, the wing platforms are formed by carefully planking the mounting area contours with hard 1/16" x 1" x 1" strips (grain spanwise). Glue is used sparingly so that they may be easily removed from the wing surfaces when dry. All seams are glued again when the platforms are installed on the fuselage. We used Silkspar on the wings.

Test flying is the same as recommended for any conventional gas model. Slight stalls or dives are corrected by adding weight to the nose or tail. In case of violent stalls, remove some of the negative incidence from the secondary wing.



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### SUPER STUNT 25c



### SUPER SPECIAL 15" 15c



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3. Every Rite-Pitch propeller is completely hand-sanded and balanced before lacquering.
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5. "Rite-Pitch" also makers of fine small engine props in most every size. Price still 15c each.

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F-B MODEL AIRCRAFT — 3240 LARIMER — DENVER 5, COLO.

Like mystery?  
Then you'll love

THE

SHADOW

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## K&B

(Continued from page 52)

engine for free flight, control line sport, and contest work.

Our test was started with a break-in run on the 10/6 Torpedo propeller supplied with the engine. Starting was very easy and the engine reached 10,000 rpm but it would overheat and stop very suddenly unless the needle valve was left rich, so the break-in was continued. Four hours' running time eliminated this tight condition and brought the engine to its full power. At this point the rpm checks were made for the propellers listed.

The engine started easily at all times whether it was hot from a previous run or stone cold. After running at 16,000 rpm the compression seal was good and starting not affected. This is a rare good quality among model engines. Running was very smooth at all speeds up to 15,000 rpm. Since the engine does not have a ball-bearing shaft, high-speed running above 15,000 rpm was not prolonged. Best results for any application except racing can be obtained at 13,000 rpm or less without causing unnecessary engine wear.

### Engine Data

Performance. Weight: 6.84 oz. Propellers—10/6 Torpedo: 10,600 rpm; 9/6 wide blade: 12,200 rpm; 8/8 wide blade: 13,000 rpm; 7/9 narrow blade: 15,000 rpm; 8/6 wide blade: 16,000 rpm. Fuel: good performance on hot or cold blends. Fuel level test: 10" at 10,600 rpm.

Design Data. Displacement: .299 cu. in. Class: B. Stroke: .724 in. Bore: .725 in. Stroke bore ratio: 1. Compression ratio head: 8.9. Compression ratio base: 1.47. Port area—Intake: .049 sq. in. By-pass: .056 sq. in. Exhaust: .112 sq. in. Ignition: Torpedo Glow Plug.

Construction Features. Bearings—crankshaft: bronze bushing; crankpin: aluminum; wrist pin: aluminum. Cast-iron piston with excess weight cut away.

### Parts Illustrated

1. Base: die-cast aluminum with bronze bearing, 1.58 oz. 2. Back cover plate: die-cast aluminum, 1 7/32" dia., .25 oz. 3. Glow plug: 1/4-32 thread, .10 oz. Washer: copper, 4. Cylinder: steel, .725" I.D. x 1 5/16" long, 1.72 oz. 5. Piston: cast iron, .725" dia. x .739" long, .28 oz. 6. Needle valve assembly: brass and steel, 1/16" needle, .25 oz. 7. Connecting rod: aluminum alloy, 1 3/8" long, .09 oz. 8. Wrist pin: steel with aluminum pads, .155" dia., .04 oz. 9. Cylinder head bolts: steel, 4-40 thread, .14 oz. 10. Crankshaft: steel, .375" shaft, .217" crankpin, 1.18 oz. Drive washer: steel, 1" dia., .30 oz. Front washer: steel, 1/8" dia., .18 oz. Propeller nut: steel, 1/4-28 thread, .09 oz. 11. Back cover bolts: steel, 4-40 thread, .17 oz. 12. Cylinder head: die-cast aluminum, 1 3/8" dia., .47 oz.

Total weight: 6.84 oz.

## Mobilization

(Continued from page 16)

Air Defense authorities on the rules for flying of non-air-carrier civil aircraft during emergency. The problem is not so much in a "Red Alert" when enemy planes come, or in a "Yellow Alert" when danger is imminent. Planes would have to be grounded then, and let fly for mercy missions if attack comes to these shores.

These conditions, however, are relatively short-lived. Over perhaps a considerable period, there may be a "White Alert" in a period of military tension. Day and night, radar crews must be scanning and spotters on watch. All civilian flights would have to be known



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so that checks on unknown planes by fighters would be fewer.

In areas where traffic exceeds the capacity of the flight control system to handle it, priorities must be established. Working out the classes of flying to be given preference has been one of the problems. It is believed that CAA, where the control will be exercised under military direction, is in closer harmony with Air Force officers responsible than ever before. There is hope that interference with normal flying can be minimized by the use of commonsense rules.

Ground Observer Corps exercises were conducted by the Air Force in the Northeast, Great Lakes, and West Coast regions. These were the areas first organized for civil defense. Those more recently added will be tested when organization is further advanced.

Some 210,000 civilian volunteers at 8,000 observation posts and 26 filter stations participated. (A total of 400,000 volunteers will comprise the whole corps when fully manned.)

When one or more planes passes over an observation post, an "Aircraft Flash" telephone call goes to the filter center. The message tells number, direction, altitude, and speed of planes seen or heard.

The filter center pieces together information from the spotters on a grid map of the area and keeps advising the USAF ground control intercept unit so that fighter-interceptors can be sent to make positive identification if necessary.

Free flying opportunities are not yet in prospect, as this is written, since the closing of applications for GI training in July. The ROTC bill includes authority

for lightplane flight training of Air ROTC students by contract at local airfields, and will enable the Army to start some of its ROTC students toward getting their Army Aviator wings.

(The Army, incidentally, has set out to train its aviators in instrument flying

sequent wait of Draft-UMT legislation. Hence the program is getting to a slow start.

Otherwise, opportunities are slow to develop. The Airman Training Bill to start another nation-wide movement as in the Civilian Pilot Training Program before the last war, under CAA auspices, has not advanced.

But there are airplanes to be bought at low prices at civil airports where plenty of attention will be given to those who are able to afford flight lessons.

Job opportunities are outlined in some detail in the new Occupational Outlook Handbook compiled by the Bureau of Labor Statistics and about to come off the presses. This BLS Bulletin 998 is available for \$3 from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

Both for air transport and aircraft manufacturing jobs, the book tells about the earnings, how to apply, what qualifications are needed, working conditions, unions, etc.

Prior to appearance of this book, the Veterans Administration had an abbreviated preview of some of the material in its Revised Industry Statements as of last December. Both for veterans and non-veterans, the new handbook may prove a good investment.

Recruiting for the air services has become a problem, to maintain even the current strength. Since the 95-Wing Air Force is viewed officially as an "interim goal" and semi-official spokesmen talk of no less than 150, some drastic changes all along the line can be expected.

### The Free Flighter's Lament

*I shot a plane into the air,  
It fell to earth I know not where.  
-%%'!! dethermalizer stuck,  
Another case of plain bad luck.  
Good-by one red-hot twenty-nine,  
You went and ran too hot that time.  
You'll soon be picked up by some hick,  
Who'll want to know what makes you tick.  
He'll bend your shaft and strip your head,  
And mangle you until you're dead.  
Then he'll throw you out the door,  
That's one twenty-nine that will run no more.  
And you, my seven-dollar ship,  
The way you act gives me the pip.  
I work to get you adjusted right—  
And what do you do?—out of sight!  
I can always get another plane,  
But the seven bucks I won't see again.  
If anywhere this plane you see,  
Won't you bring it back to me?  
A.M.A. Number 6993.*

—William F. O'Neil

so they can operate their liaison planes in all weather.)

ROTC legislation long lagged behind the general bill for the Reserves of all the services which in turn was delayed by the MacArthur debate and the con-



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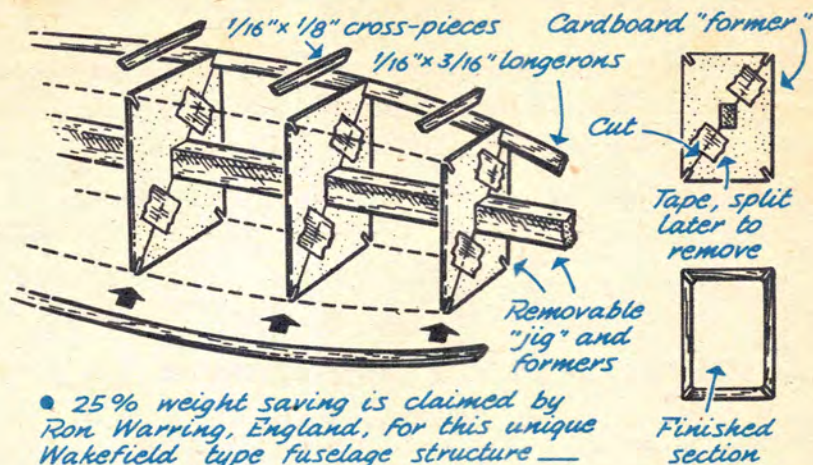
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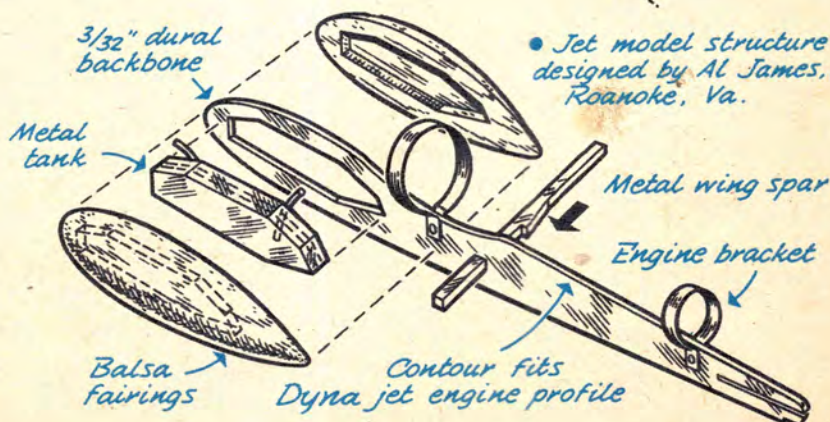
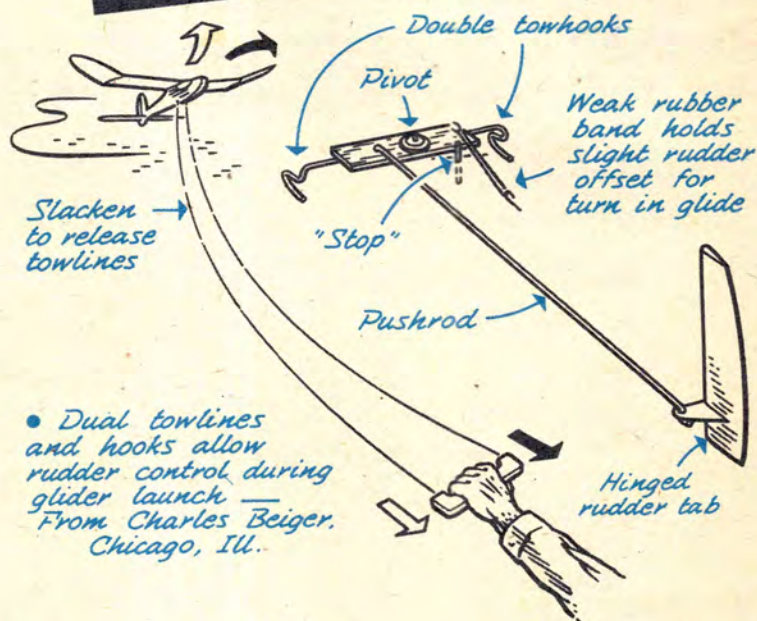
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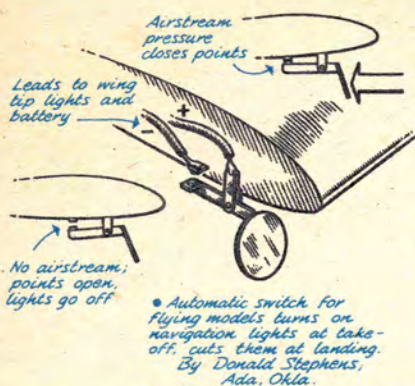
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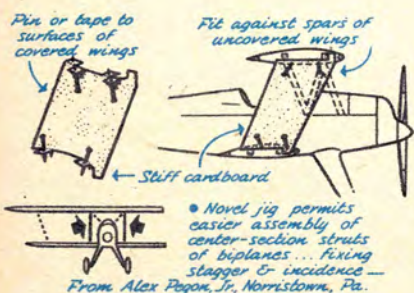
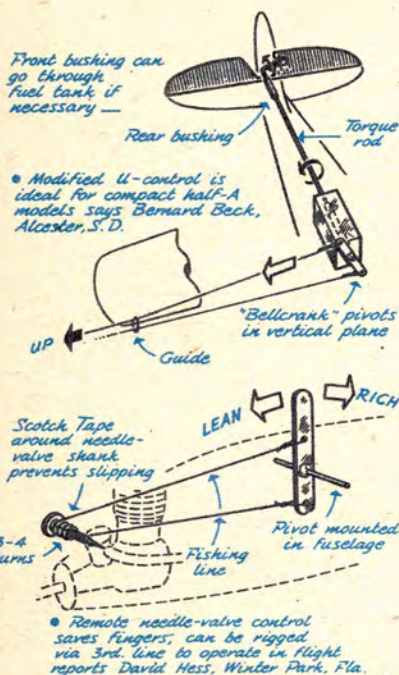
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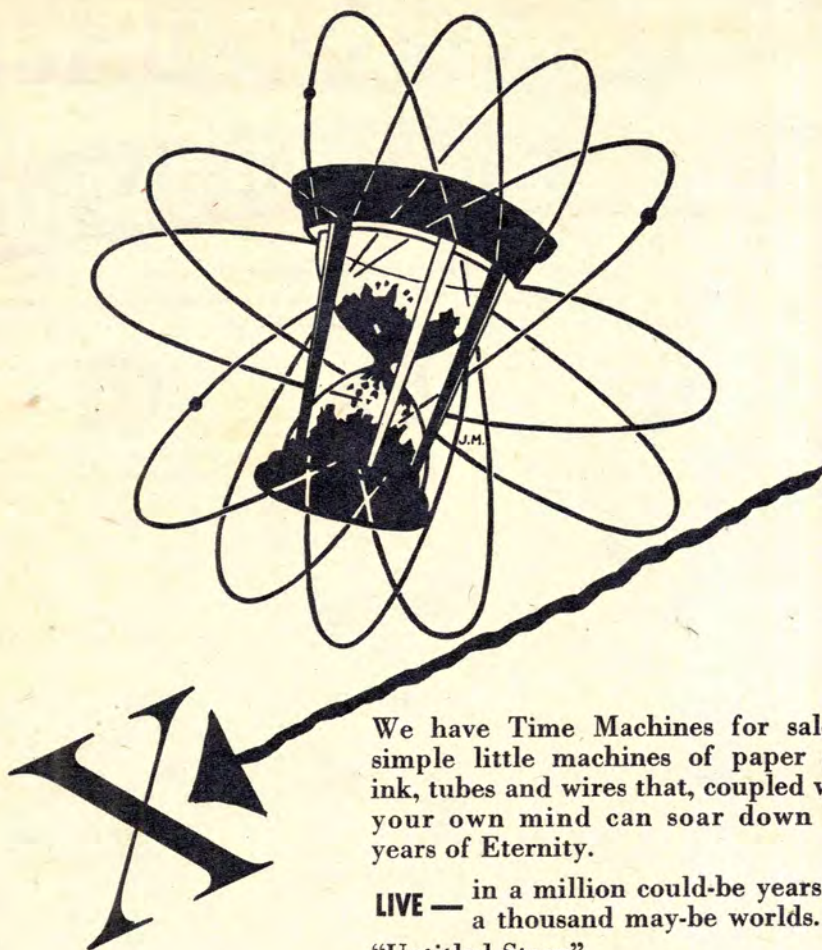
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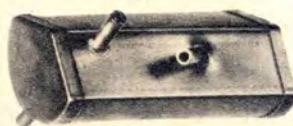
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(Continued from page 57)

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Oceanside, Cal., Prop Spinners  
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Fulton, Ga., East Point-South Fulton Model Assoc.  
Warner, Ga., Warner-Robbins Model Club  
Pocatello, Idaho, Spark Plugs  
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Gary, Ind., Balsa Butchers  
East St. Louis, Ill., Cloud Hounds  
Urbana, Ill., Torque Jockeys  
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New York City Model Aeroplane Engineers  
Bronx, N. Y., Tailskid Airplane Club  
New Lebanon, N. Y., Aeronauts  
Binghamton, N. Y., Aeros  
Buffalo, N. Y., Prop Twisters  
New York City Supersonic Airplane Club  
New York City Bronx Aeroneers  
Brooklyn, N. Y., Avions  
New York City Star Chasers  
Albany, N. Y., Modelairs  
Jersey City, N. J., Air Wheels  
Irvington, N. J., Flying Gremlins  
Burlington, N. C., Aeronauts  
Leaksville, N. C., Model Airplane Club  
Toledo, Ohio, Model Manglers  
Cincinnati, Ohio, Model Engineers  
Chickasha, Okla., Flyers  
Warren, Pa., Model Club  
Sharon Hill, Pa., Air Scouts  
Chambersburg, Pa., Model-Airs  
Dalton, Pa., Model Aero Assoc.  
Laureldale, Pa., Skyliners  
Fredericksburg, Va., Model Crafters  
Olympia, Wash., Model Aero Club  
Vancouver, Wash., Skyliners  
Walla Walla, Wash., Gas Bugs  
Hoquiam, Wash., Sky Kings  
Clarksburg, W. Va., Model Airplane Club  
Short Creek, W. Va., Aeromodelers  
Janesville, Wis., Record Wreckers  
Toronto, Ont., Canada, NVS Club  
Victoria, B. C., Canada, Model Airplane League.

Remember, now, if you should be a member of any one of these clubs and it is still active, ask the secretary to notify Air Trails immediately of his address so our Club Directory records may be corrected accordingly and the proper listing made here in AT.

### New Clubs

(Add to your current list of active groups)

Fredericton, N. B., Canada, Model Airplane Club, c/o John Forbes, vice-president, 508 Charlotte St.  
Happy, Texas, Skyliners, c/o Kenneth Jennings, secretary-treasurer, Box 275.  
Matanzas, Cuba, Club Aeromodelista, c/o Pedro Ramos Garcia, reporter.

### PHOTO CREDIT LIST

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Pages 22-23—Bell.  
Page 26—Top: N.A.C.A.; bottom: Piper.  
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Independencia #174.  
Fort William, Ont., Canada, Plymouth Aero League, c/o C. Kehoe, secretary-treasurer, 206 North Marks St.  
Illinois-Iowa Aeronautical Association, c/o Mrs. Lee Daebellehn, Hill Top Model Port, 4105 Fourteenth Ave., Rock Island, Ill.  
Peine (near Hannover), Germany, Model Club, c/o Annemarie Rauch-Hoffman, Glockenstr. 5.  
Moncton, N. B., Canada, Model Airplane Club, c/o Bob Steeves, President, 97 Brydges St.  
Chicago, Ill., Skyburners, c/o J. I. Reeves Larry Burns Motors, 920 West Sheridan Road.

#### Changes in Club Address or Name

Augusta, Maine, Flying Maniacs, c/o David L. Crowe, 35 Oak St.  
Cleveland, Ohio, Lake Gas Model Club (formerly the East Side American Airlines Gas Model Club), c/o John W. Grega, director, 10422 Gay Avenue.

#### Calling Seven Air Adventurers!

Air Trails has membership credentials for the following Air Adventurers Club applicants returned by the post office: George Ballantine, San Jose, Calif.; Lacy Brown, Los Angeles, Calif.; W. E. Buffington, Jr., c/o FPO, NYC; James Greer, New York City; Wayne Ojare, Duluth, Minn.; John Papis, Mobile, Ala.; and Robert Taylor, Newark, N. J. Please notify the magazine of your correct address.

#### Chicago Club Runs Model Classes

Organized in January 1949 with 15 members, the Chicago Skyburners Model Aero Club has since grown to about 65 ranging in age from 6 to 55. Created by and for youngsters, it has since its inception attracted about a

dozen adults—mostly fathers—who have become interested so they could encourage good workmanship, precision and the various technical aspects of modeling so essential to producing winning craft.

The club meets once a week. Meetings are conducted on a forum basis where all phases of modeling are discussed, experiments conducted and various tests run off in a well-equipped shop maintained for the club. By special permission of the Chicago Park District, members fly three times a week during the summer season at the northernmost point in Lincoln Park on the Chicago lakefront in a roped-off area. The club never lacks an audience at this park, so new recruits to the activity have been encouraged as a result of the demonstrations.

The Skyburners would like to correspond with other clubs; address will be found in the club directory listing.

#### Two State Association Active

A group of model clubs known as the Illinois-Iowa Aeronautical Association now including units from Peoria, Bloomington, Macomb, Galesburg, Rock Island, Moline and Erie, Illinois, as well as from Davenport, Washington, Iowa City and Clinton, Iowa, was formed in the spring of 1947 and is still going strong. Its aim is to coordinate contests in that area indicated by the cities covered so that conflicts in contest dates will be eliminated. Each year the association runs off three meets open to member clubs only; free flight, control line and indoor. Last year the Galesburg club won the control line award while the Iowa City aggregation held the free flight trophy. The awards are presented on the basis of the largest number of points racked up by the members of an IIAA club.

As a result of the 3rd annual free flight meet conducted by the associa-

(Continued on page 75)

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## A small, dark, single-engine aircraft, possibly a biplane or a light aircraft, parked on a tarmac. The aircraft is viewed from a side profile, showing its wings, fuselage, and tail. It has a high-wing configuration and a tail boom. The background is a light-colored, possibly concrete or asphalt surface.

Extra, pair of 4½" air wheels, \$4.50

## A black and white photograph of a biplane flying over a field. The biplane is seen from a low angle, showing its two sets of wings, a single propeller at the front, and a tail section. The background is a flat, open field under a clear sky.

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NOTE: Allow 3 weeks for delivery by Third Class Mail. For First Class add 9c postage per plan ordered; for Airmail add 18c postage per plan ordered.

I enclose 25c for each plan listed:

City-Zone-State

(AT-951)

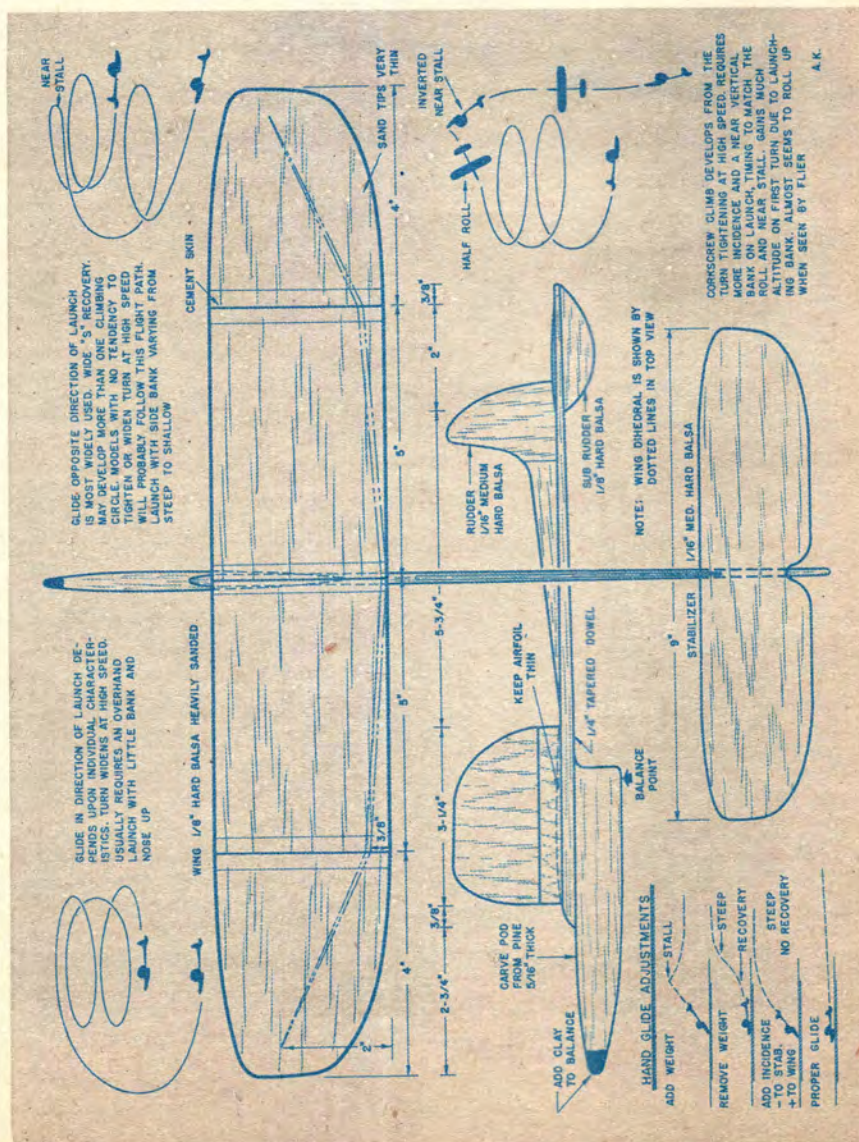
# WHISTLE

# WAGON

By  
**GERALD  
WAGNER**



ered easily with a small plane and coarse sandpaper, has survived many obstacle crashes. The hardwood pod adds enough weight to permit a really high launch. Finish with talc-dope filler and plasticized dope.





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Wanted: 1000 used motors in part exchange for new motors and supplies. Send 3c stamp for full details. East Side Models, 432 Dewey St., Sandusky, Ohio.

## SAILPLANE WANTED

British emigrant, unable to transfer sterling to U.S. will trade expense paid vacation in Britain for licensed sailplane. Thomson, 723 Tenth Street, Santa Monica, California.

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SIX AIRPLANE PHOTOGRAPHS. Giant size 14 by 17 in full colors. Decorate your clubs, dens, bedrooms and homes with these beautiful pictures of war planes in flight. Actual cost \$2.00 to make. We will mail the complete set of 6 different photographs postpaid free anywhere in the United States. Enclose your address and 50c in coin. El Cajon Surplus Outlet, 1243 East Main Street, El Cajon, California.

## MOTOR TRADE-IN

Your old motor is worth 1/4 the price of any new motor purchased from All American Model Motor Exchange, Dept. A.C., Box 885, Santa Monica, California.



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First in peace...  
...our disabled veterans

National Headquarters • Cincinnati, Ohio

(Continued from page 73)

tion at the Grand Mound, Iowa, airport, the Rock Island MAC won the championship plaque, amassing 76 points to nose out last year's victor, Galesburg, with 74 points.

Four 10-minute flights were turned in. Two were by K. R. Johnson of Galesburg in Half-A open; one by Dale Sackey of Galesburg in rubber open; and one by Bob Meeker of Rock Island in gas Class A open.

## Active Model Clubs

(These groups have presented evidence of continued activity.)

Chico, Cal., Hornets—Bob Krause, The Esplanade & 12th Ave.  
Venice, Cal., Skykings—E. E. Russell, 3471 Meier St.  
Brisbane, Cal., Power Modelers—Robert G. Boomer, 203 Visitation Ave.  
Lynwood, Cal., Loopers—R. E. Holthaus, 3510 Platt Ave.  
Santa Ana, Cal., Orange County Thunder Bugs—Jerry Gaston, 1529 Dresser St.  
Bellflower, Cal., Hi-Liners—Joan Crawford, 9459 E. Nichols St.  
San Leandro, Cal., Line Twisters—Steve Marciel, 596 E. 14th St.  
Altadena, Cal., Modelaires—Don Picht, 3313 N. Raymond Ave.  
Oakland, Cal., Sky Rogues—H. S. Robbers, Sr., 5610 E. 17th St.  
Oakland, Cal., Western Associated Modelers (association of clubs)—H. S. Robbers, Sr., 5610 E. 17th St.  
Redlands, Cal., San Bernardino Flying Wheels—Wallace L. Short, 522 Grove St.  
Long Beach, Cal., Thunderbugs—F. L. Swaney, 527 E. 55th St.  
Bakersfield, Cal., GMAA—Francis Stewart, 900—21st St.  
Fort Collins, Colo., Rocky Mt. Modelers—John W. Tipton, 420 Circle Drive.  
Manchester, Conn., Skyliners—Joe Kuhlmann, Jr., 122 Lyness St.  
Branford, Conn., Skywolves—Thomas A. Cimino, S. Montowese St.  
Southington, Conn., Flitimers—Willard R. Ballou, Stuart Drive.  
Bridgeport, Conn., Aeronuts—Earl Gay, 629 Boston Ave.  
Hartford, Conn., Greater Hartford M. A. C.—Richard Matava, 358 Prospect Ave.  
New Britain, Conn., MAC—M. Adajian, 39 Brooklawn St.  
Miami Fla., Tropic Aeros—Bill Stoia, 1896 N. W. 36th St.  
Daytona, Fla., Model Plane & Car Club—William T. Thomas, 105 N. Halifax.  
Lake Bluff, Ill., Waukegan Strathawks—C. W. Clark, 324 Sheridan Pl.  
Chicago, Ill., Gas Lions—W. E. Harnden, 2835 W. Belmont Ave.  
Chicago, Ill., Gas Model Aeronauts—Peter J. Sotich, 3851 W. 62nd Pl.  
Chicago, Ill., U-Line Pilots—Fritz Lindgren, 3622 N. Marshfield.  
Chicago, Ill., Washburne Trade School GMC—A. J. Heinmiller, 1225 Sedgwick St.  
Chicago, Ill., Aeronuts—Pete Vacco, 4652 N. Milwaukee.  
Chicago, Ill., Model Nuts—James J. Baron, 5025 N. Pulaski Rd.  
Galesburg, Ill., MAC—Kenneth W. Freese, 224 Silver St.  
Aurora, Ill., MPC—Hart G. Betts, 7 Fox Promenade.  
DeKalb, Ill., Cloud Dusters—Dutch Hess, 137 1/2 E. Lincoln Highway.  
Anderson, Ind., Johnnies—W. J. Campbell, 1712 Euclid Drive.  
Manchester, Ind., Sodbusters—Hi Martin, R. R. #1, N. Manchester.  
Warsaw, Ind., Screamin' Demons—Gordon Blausier, 303 1/2 N. Columbia St.  
Mishawaka, Ind., Buzz Bugs—R. P. Moorhead, 713 N. Main St.  
West Lafayette, Ind., Purdue Aero-modelers—Lloyd Hackman, c/o Purdue Memorial Union Bldg.  
Council Bluffs, Iowa, Spindizzies—Don Hutcheson, 2938 4th Ave.  
Ottumwa, Iowa, Hornets—Claude McCullough, Rural Rt. 5.  
Sioux City, Iowa, Helldivers—Chas. W.

(Continued on page 77)

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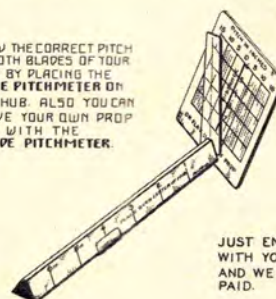
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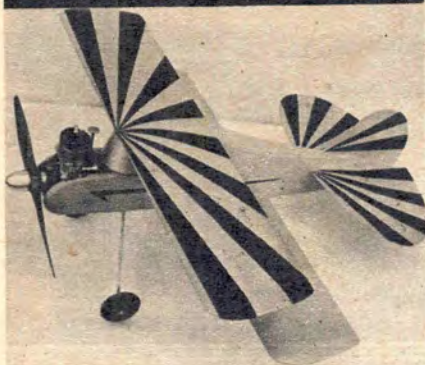
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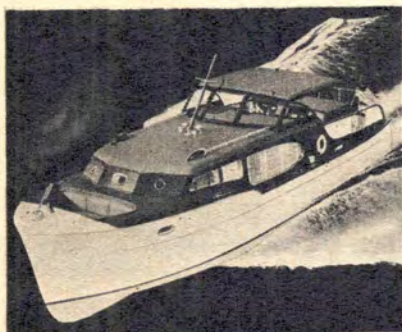


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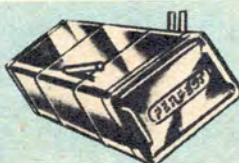
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Consolidated (3087 Third Ave., NYC 56) has F-51 with Redi-Carved fuselage for Half-A flying. Cut-to-shape wings and tail surfaces; all hardware. \$2.95.



(Continued from page 75)

Percy, 923 Sixth St.  
Wichita, Kan., Y-Wichihawks—Bob Hardetty, 633 S. Estelle.  
Louisville, Ky., ABC Model Club—H. O. Wise, 2802 Rodman St.  
New Orleans, La., Aero Club—Whalen J. Norman, 334 Baronne St.  
Lake Charles, La., Aeromodeliers—Harry J. Zempter, 909 Ryan St.  
Portland, Me., Propsnappers—M. G. Kennedy, 457½ Congress St.  
Glen Burnie, Md., Ritchie MC—Bill O'Berry, 104 S. Crain Highway.  
Riverdale, Md., Sky Devils—Jim Gray, 5602 54th Ave.  
Baltimore, Md., Martin MAC—Henry M. Caplan, 719 Glenwood Ave.  
Baltimore, Md., MAC—Lee Witmyer, 2906 "A" Dunbrin Rd.  
Cambridge, Mass., Tech (MIT) Model Aircrafters—Bldg. 18, M. I. T.  
Port Huron, Mich., Inter City MC—Contact Robert W. Fraser-Lee, 832 Pine St.  
Detroit, Mich., Woodchoppers—Jerry Lindsay, 39 North Ave., Highland Park.  
Detroit, Mich., Michigan Modelers Assoc.—Warren E. Bartlett, 6814 Varjo.  
Gladstone, Mich., Strato Flyers—Rex Coulter, Rialto Camera Mart.

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Winona, Minn., Win-Aero MC—Wesley R. Kittle, 1600 Gilmore Ave.  
St. Cloud, Minn., MC—John Voth, St. Cloud Hobby Shop, 24 Sixth Ave., South.  
Anaconda, Mont., Modelers Assoc.—Bob Laslovich, 420 Chestnut.  
Red Lodge, Mont., Aircsrews—C. J. Erck, 617 S. McGillen Ave., P. O. Box 214.  
Houston, Mo., Model Aeronauts—Max Burkhead.  
Afton, Mo., Greater St. Louis Modelers Contact—Gene Winn, 8027 Wynwood Drive.  
Overland, Mo., St. Louis Model Engineers—Gilbert A. Frankenberg, 2218 Wismer Rd.  
Rolla, Mo., Prop Nutz—Fritz Clark, 1111 State St.  
Kansas City, Mo., Ski-Hi MAC—E. H. Francis, 4825 Independence Ave.  
Bonne Terre, Mo., Flying Aces—Linus Boehle, 307 Jackson St.  
Kirkwood, Mo., Thermaleers—Parnell Schoenky, 125 East Maple Ave.  
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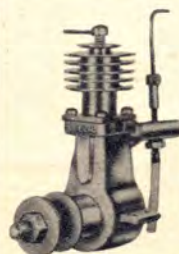
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# Western

(Continued from page 63)

the free flight builders to run this contest. These men unselfishly spent their time and money to journey the 100 odd miles to help. This has since spread to Los Angeles and San Diego where they find it easy to get competent officials when each group helps the other.

Manny Andrade, by putting up two five-minute maximums and another of 208.9 seconds was the winner. The most consistent flyer of the meet, Joe Foster, Jr., took second just twenty-nine seconds from first. Bill Sharp wound up third through a loose wing. On his first flight his wing cocked over and he managed only 131.4 seconds. Ernie Wisely took fourth.

Red Everitt, the pre-meet favorite, became a cropper due to rubber bunching. All those observing were of the opinion that the "strawberries" were caused by coming in too fast while winding. Chuck Hollinger put up three nice flights but didn't seem able to get into any of the help that was there. Henry Cole became a cropper due to a dipping glide. Chuck Woods' first flight was disqualified due to an assist, but his other two flights were very nice. Don Donahue assisted on his first flight and

Lima, Ohio, Line Tamers—John W. Botkin, 417 S. McDonel St.  
Shelby, Ohio, Balsa Buzzards—Howard L. Robinson, Shelby Pure Milk Co.  
Cincinnati Prop Busters—Ray Moore, 285 Southern Ave.  
Medina, Ohio, MC—Edward Jackson, RD #1, Albion Rd.  
Chillicothe, Ohio, Fly Guys—Gene Osborne, Box 113.  
Sandusky, Ohio, Sad Sacks—A. J. Schaefer, 432 Dewey St.  
Ada, Okla., Prop Spinners—Roland E. Descans, 528 East Main St.  
Portland, Ore., Fire Balls—Raymond J. Arrigotti, 3732 S. E. 28 Ave.  
Athens, Pa., Flying Panthers—Donald G. Jackson, 612 Wells Ave.  
Mt. Wolf, Pa., Model Craftsmen—C. M. Ehrhart, 21 S. Fifth St.  
McKeesport, Pa., Assoc. of Model Engineers—Andrew C. Kushner, 707 Hazel St.  
Bristol, Pa., Aeromodelers—William Rasmussen, 1617 Wilson Ave.  
Hazelton, Pa., Flying Gremlins—James Lindeman, 88 North Wyoming St.  
Pittsburgh, Pa., Flying Circuits—Norman Tauberg, 1118 Morningside Ave.  
Sioux Falls, S. D., Pylon Pirates—Donald J. Wullstein, 1026 S. Western Ave.  
San Antonio, Texas, Alamo Heights Skysters—John Franke, 415 Kokomo.  
Bryan, Texas, Aggie Modelers—Rogers L. Barton, 301 Lake.  
Plainview, Texas, Skydusters—J. B. Oberthier, 709 Oakland.  
Beaumont, Texas, Sabine Area MC—E. D. Patterson, 2170 Pecos.  
Suffolk, Va., Prop Twisters—B. C. Tray-

lor, 111 Grayson Court.  
Everson, Wash., MC—Andy Beaudry, Box 224.  
Ft. Lewis, Wash., Cloud Clippers—Earl F. Witt, Education Center #2.  
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Mt. Vernon, Wash., MC—Bud Peck, c/o Dependable Motor Co.  
Wheeling, W. Va., Ohio Valley Aero-modelers—Harold L. Bowman, 207 S. Penn St.  
Beckley, W. Va., Modeleers—Mrs. Gene Keatley, 217 Prince St., Box 348.  
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Milwaukee, Wisc., Hedgehoppers—Ralph E. Paradowski, 2049 S. 35th St.  
Wausau, Wisc., Line Twisters—Richard G. Gooding, 826 McIndoe St.  
Beloit, Wisc., Hangar #13 MC—John H. Bort, 122 Hackett St.  
Burlington, Wisc., Flyin' Liars—Dick Miller, 362 Jefferson St.  
Beaurepaire, Que., Canada, Lakeshore Thermal Chasers—W. E. Desbarats, 552 Lakeshore Road.  
Montreal, Que., Canada, Sleepless Knights—Joseph F. Rose, 6051 Hutchinson St.  
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| K & B Mfg. Co.                              | 76           |   |                   |

While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this September, 1951 index.

elected to do no more flying. Sidney Seldon Jr. had probably the most pleasing model from a simplicity standpoint. Well designed with clean lines—a very good flyer. His rear dowel slipped out on this third flight and ruined his ship. J. N. Jackson of Salt Lake City had a modified Ehling model without gears which looked good, but he had a dipping glide which he couldn't iron out.

Of the gadgets, there didn't seem to be too many. Quite a few of the fellows, especially those with very light fuselages, used 1/4 inch aluminum tubing for rear anchor; while winding they inserted a steel wire through this tube and the model was anchored by holding the wire. J. N. Jackson wound with a hand grinder fastened to a small metal saw horse. The holder went out and came in while Jackson wound. Hank Cole in addition to the forward-folding counterbalance had a delayed-action retractable gear. Don Donahue used a saw horse with restraining dowel for holding his twin-gear job.

That is about all for the Wakefields except to say that it would be impossible for any person or group of persons to run a contest any better. The rules were followed to a "T." The take-off judges and timers were all well schooled, and except for one take-off gripe which was handled very well and one very irate farmer whose barley was being trampled but who was much cooler at departure, the contest was managed quite smoothly. Orchids to Mom and Pop.

The Pacific Free Flight Championships were a two-day affair with rubber, hand-launched glider, towline glider and Half-A PAA load being run on Saturday and all classes of gas on Sunday.

Ted Enticknap and wife motored down from the State of Washington and along with Bill Daniels established "Gool City." There were no less than nine Gools lined up at one time. When one stops and considers that several of them were the nine-foot jobs, you can imagine the imposing array they made. Ted had along an Atom powered Niuport which he flew for kicks, and it did a really good job. It seemed very stable, making realistic take-offs and landings.

One model builder was heard to utter a classic statement after Cliff McBaine made his third flight of over four minutes with his ten-year-old Toft diamond: "Old models never die, they just float away." How true.

Marvin ("What a Job") Foreman trotted out his fourteen-foot towline and patiently unwound about 75 or 80 feet of twine. His tow was slow and majestic, Marv being very careful to keep his ship's attitude smooth. At release, those fellows who had in 8 or 9 minutes were seen to mentally put themselves down another notch in the standings, for sure enough he logged ten minutes and took another first. We cannot remember a contest where he has not won—that ship is good!

Tom Moffitt's payload Paakid didn't do so good this time; he only placed second, seconds behind the winner. In three payload contests this year Tommy has won two firsts and a second, with one meet yet to go.

Toshi Matsuda won his fourth Testor's beauty plaque and also did something which should quiet a few grippers. He also won first in B with the same ship. Toshi uses fluorescent colors on his ships, then finishes with Aero-Gloss.

Bob Wiehle came out with a new ship, a scaled-down 1/2 A Cumulus which he

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calls *Nimbus*. Powered with a Wasp, it really flies. The ship is up to Bob's usual work for the judges had a really tough time deciding whose ship was the best.

Jack Oxley finally did it: he was Sweepstakes champion of this big meet. Much to the surprise of everyone, Jack flew in towline glider as well as the regular gas events and his fifth in towline pushed him in.

Bill Daniels and Jack were fighting it out again for Class C. Gool versus *Sailplane*. This time Bill won. Why don't they let some one else win for a change? Seriously, though, these two guys are hard to beat.

One can't go to a contest on the Coast without finding several radio jobs on hand. They seem to be scattered all over the state. By way of promoting closer cooperation, a Radio Control Roundup was recently held in Fresno. R-C fans from L. A. to San Francisco were on hand and a very interesting display was put on, ranging from dogfights through stunting and realistic flying. Sizes of the ships varied considerably. Ed King had a monstrous nine-foot model while Bill Butler was flying some with only four-foot spread.

Main differences of opinion were that the S. F. fellows build semi-scale jobs using 100 percent Rockwood receivers for transmitters while the L. A. boys use the Aerotrol, Control Research and Citizen Band sets in semi-free flight type models.

They even had a television cameraman and a script writer up there filming the activities for a TV show, "Men of Tomorrow."

All in all the fellows had a swell time. Some cracked up ships, some didn't fly, but all went home with a wealth of experience and a lot of determination. Here's hoping there is another roundup soon.

The Salinas Junior Chamber of Commerce recently put on the largest U-Control contest which has been held out West for years. First forced to postpone because of rain, they seemed doubly determined to put on a super-duper show, and this they accomplished the following week.

Arrangements were made so that the police would handle the large crowd expected. Those citizens who normally worked were allowed time off to see the contest, with pay; over 100 trophies were collected by the enthusiastic workers. This Jr. C. C. did itself up proud. Anyone wanting to learn how to promote and provide for a contest should contact this hard working group.

Bob Palmer with a gang from the

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L. A. area made the trip up the second time and did his usual flying, winning two first places.

Gene Stiles, who holds our only international record proved once again how versatile he really is by winning the sweepstakes trophy.

The W. A. M. have an event which is not usually found at contests, that of control line endurance. After watching patiently while several fellows endeavored to make endurance flights with all kinds of special equipment, Bernice Jaynes of the Sacramento Air Aces Association stepped quietly into the circle, took off her ship and 821 laps, 1 hour 25 minutes and 30 seconds later landed. Here are the statistics: motor, Spitfire 60; fuel, O & R; 70 foot lines, 821 laps, distance flown 68.4 miles, average speed 48 mph; fuel consumed, 2 1/2 quarts; weight at take-off, 7 pounds 13 ounces; weight at landing, 4 lbs. 4 ounces. And get this: mileage 117 miles per gallon! Anybody got a car that will do half that?

The second PAA meet of the year was held at Tracy, which seems to be the site of free flight meets for the San Francisco-Oklahoma area. Since the day was the same as the Wakefield, the sun was hot. Times though, due to the wind, were not too high.

John Tatone had a very clean ship which sure goes upstairs. John's cabin is unique, being a streamlined pylon completely covered with green celluloid. Just the head of "Pappy" was up in the cabin.

Hal Roth had a nice looking Crowbar built from AT plans but seemed to have quite a bit of trouble with his timer.

In Class Half-A Jr.-Sr., Donald Wood of Pittsburgh was first, while Bruce Hannah of Stockton won A-B. A. Bossevain of Redwood City won Half-A Open and John Pond of San Francisco Class A-B Open.

The San Diego Aeroneers 11th Annual came off as expected, not as many entries as usual due to the big meet the week before.

We saw something very unusual happen which must be passed on, for we are still wondering just how the guy did it. Robert P. Smith who won Class C took his first two flights and didn't hook anything. He started to take his third, then decided to wait since ships were going out in 4 1/2 to 6 minutes. He waited over three hours, turning down numerous chances to fly. Suddenly just a half hour before the contest was over, he jumped up, asked for a timer, started up his motor, took off his ship—and did ten minutes.

This is getting just a little monotonous, but Toshi Matsuda won the beauty event as usual.

We invited the R-C fans down to compete. It was decided to hold this event strictly as spectator appeal so the prizes were given accordingly. That old master, Bill Butler, showed his heels to the rest of the gang, followed by E. J. Brown.

Fred Bonnar turned up with a two-speed which really works slick. He uses a K&B shut-off, makes a new shaft and drills two holes through it to pass the gas, one large and one small. He adjusts the motor to run good with the small hole passing the fuel. When his escapement turns the shaft to the large hole the engine four-cycles real slow—a smooth, neat rig.

Three guys who have helped out repeatedly, Bill Scott, Lud Kading and Johnny Brodbeck, were presented with plaques by the San Diego Aeroneers "in appreciation."

—DICK EVERETT



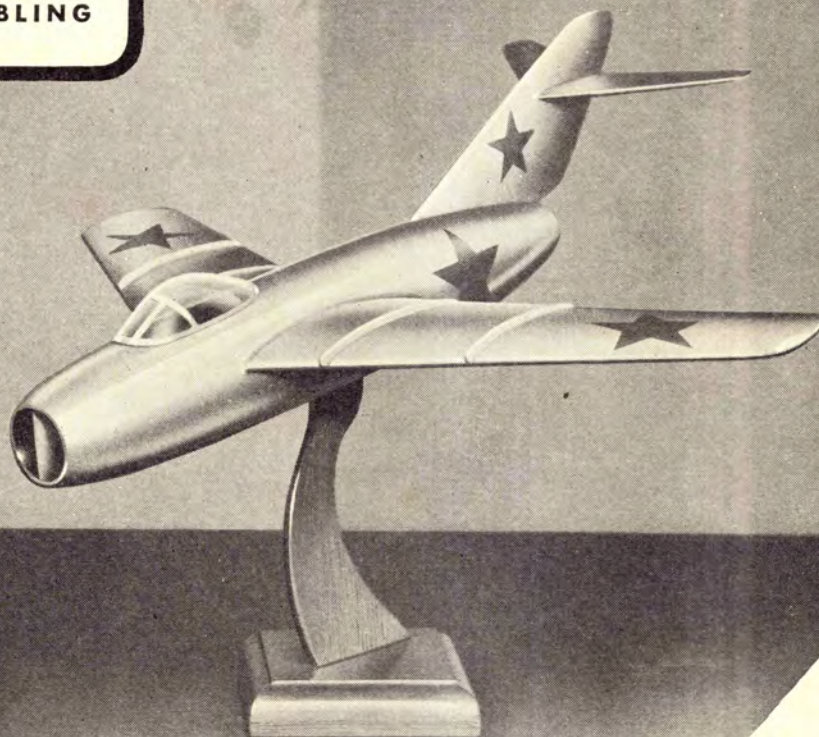
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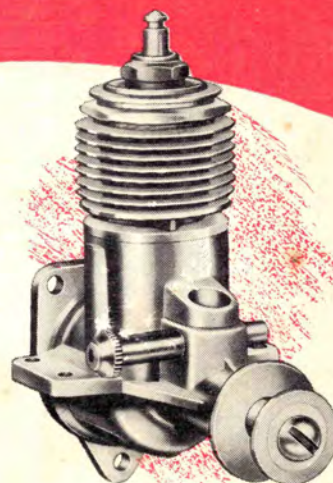
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